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**WORLD MARITIME UNIVERSITY**  
Malmö, Sweden

**MULTIMODAL TRANSPORT AND  
TRADE FACILITATION:  
IMPLICATIONS IN THE CHINESE CONTEXT**

By

**XU GUIBIN**  
China

A dissertation submitted to the World Maritime University in partial fulfilment  
of the requirements for the award of the degree of

**MASTER OF SCIENCE**

in

**SHIPPING MANAGEMENT**

1999

## DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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## **ABSTRACT**

Title of Dissertation: **Multimodal Transport and Trade Facilitation: Implications in the Chinese Context**

Degree: **M.Sc.**

This dissertation is a tentative effort to look into the concept of multimodal transport, with special focus on its application to the Chinese situation. Attention is also paid to the trade facilitation measures involved in the process of multimodal transport, particularly in the Chinese context.

Discussions on economics of different modes of transport are made to identify advantages and disadvantages of each mode. Containerisation and its effects on multimodal transport are briefly touched upon. Benefits of multimodal transport are also enumerated.

Legal regimes governing unimodal transport and multimodal transport are respectively examined, and also compared where appropriate, with a view to establishing a uniform legal framework for multimodal transport. A brief introduction to the Chinese multimodal transport regulations is also given. Multimodal transport operators are investigated with regard to their types, basic requirements or qualifications, policy measures and their relationships with various other parties involved in the whole multimodal transport chain.

The second part of the dissertation focuses on the specific situation of Chinese multimodal transport regarding its current development, the administrative systems and the major participants involved. In particular, the major existing problems and bottlenecks in the field are identified, and possible solutions are recommended accordingly.

Key words: multimodal transportation, China, legislation, policy, economic aspects.

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## ABBREVIATIONS

CFS	Container Freight Station
CGA	Customs General Administration
CIB	China Import and Export Commodity Inspection Bureau
COSCO	China Ocean Shipping (Group) Company
CT	Container Terminal
DWT	Deadweight Tonnage
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport
GDP	Gross Domestic Product
ICC	International Chamber of Commerce
ICD	Inland Clearance Depot
LCL	Less Than Container Load
MOA	Ministry of Agriculture
MOC	Ministry of Communications
MOFTEC	Ministry of Foreign Trade and Economic Co-operation
MOH	Ministry of Health
MOR	Ministry of Railways
MOU	Memorandum of Understanding
MT	Multimodal Transport
MTD	Multimodal Transport Document
MTO	Multimodal Transport Operator
NCCTF	National Container Co-operation Task Force
NVO-MTO	Non-Vessel-Operating Multimodal Transport Operator
OECD	Organisation for Economic Co-operation and Development
Penavico	China Ocean Shipping Agency
PSB	Public Security Bureau
SDPC	State Development and Planning Commission
SDR	Special Drawing Right
SETC	State Economic and Trade Commission
SinoAgent	China Marine Shipping Agent
Sinotrans	China National Foreign Trade Transportation Group
SOE	State-Owned Enterprise
TEU	Twenty Foot Equivalent Unit
TTFC	Trade and Transport Facilitation Committee
UNCTAD	United Nations Conference on Trade and Development
VO-MTO	Vessel-Operating Multimodal Transport Operator

## **CHAPTER I**

### **Different Modes of Transport and Multimodal Concept**

#### **1.1 Economics of Different Modes of Transport**

Traditionally, modern transport is divided into six different modes viz. rail, road, sea, air, inland waterway and pipeline. For the sake of simplification the pipeline transport mode is not intended to be discussed in this dissertation.

##### **1.1.1 Economic and Technological Features of Major Transport Modes**

With regard to sea transport, it is self-evident that the ocean carriage of goods plays the biggest and the primary part in the whole multimodal chain. The movement of over 90% of the total world trade has been carried out by sea transport, one of the most ancient transport modes as well as the most dynamic transport mode which is constantly rejuvenated by modern transport technologies, such as containerisation, information technology and so on. The advantages and unique characteristics of sea transport will be looked into throughout the dissertation.

Rail, road and inland waterway are the three major modes in terms of inland transport modes.

##### **(A) Railways**

Generally speaking, rail transport enjoys the inherent advantages as follows: comparatively low energy consumption per ton/km, therefore low cost of transport, potentially high level of safety, possibility of programming transport processes, possibility and economic viability of carrying large volumes of bulky cargo (UNCTAD Secretariat, 1984, 16). One of the major drawbacks of railways is their inflexibility. Therefore, since the advent of road haulage on a larger scale and the corresponding extension of road networks, the share of railways in total transport, on shorter distances in particular, has decreased considerably.

Nowadays, the introduction of containers, especially the concept of multimodal transport, allows railways to take greater advantage of its strong points by both technological and organisational adaptation to the needs of the container. The modal split will leave the trunk haul to the railways and further distribution to road haulage. This idea proves especially feasible in the case of transport of containers from or to seaport terminals where containers are concentrated. Normally, a unit train system is established in this situation.

#### (B) Road

After having taken a big share from other modes of inland transport, especially from railways, road transport has now assumed considerable importance and constitutes in most countries the backbone of the transport systems. Road haulage has also played a crucial role in most countries' economic development, due to its flexibility in creating networks more easily than other modes of transport and, consequently, to promote balanced regional development. The relationship between road and other modes of inland transport, especially rail transport, can be both substitutionary and complementary. In other words, on trunk hauls the different modes might compete with each other, while road transport will usually complement other modes by taking over the tasks of final distribution or collection of cargo of consignees/consignors not directly connected to rail or inland waterway transport.

Compared with other modes, road transport is characterised by its rapidity, flexibility and convenience. However, the comprehensive cost of road transport will go up with the increase of transport distance. Road transport can be more costly also due to the fact that there are toll collections on most of the expressways and bridges. In addition, there is more and more awareness of the fact that road transport will possibly lead to serious problems such as traffic congestion, growth of accidents and environmental pollution.

### (C) Inland Waterways

Inland waterway transport has for a long time had a quite negative image of being a slow and unreliable mode of transport. However, with the development of river transport technology, and in particular the ever-growing awareness of being an environmental-friendly mode of transport, inland water transport has been reconsidered in certain regions as a favourable substitute or complement to road transport. One of the major advantages with inland water transport is transport of large volumes of cargo at low cost. In order to benefit from this strong point for the carriage of containers on inland waterways, organisational and technological adaptation to accommodate the new type of transport needs to be made, i.e. the transport of containers on inland waterway vessels. The carriage of containers on inland waterways requires a modal split, leaving the trunk haul to the vessel and further distribution to road, or in rare cases also to rail. In exceptional cases it might also be possible to split the trunk haul between inland waterway and rail.

The different economic, technological and other features of five major transport modes can be compared in Table 1.

Table 1. Comparison of Major Transport Modes

	<i>Rail</i>	<i>Road</i>	<i>Sea</i>	<i>Air</i>	<i>Inlandwater</i>
<i>Speed</i>	Low	High	Very low	Very high	Very low
<i>Cost saving</i>	High	Low	Very high	Very low	Very high
<i>Reliability</i>	Very high	Very high	High	High	High
<i>Safety</i>	Very high	High	High	Very high	Very high
<i>Flexibility (Location &amp; time)</i>	Low	Very high	Very low	Low	Low
<i>Availability</i>	Low	Very high	Low	High	Very low
<i>Environment friendly</i>	Good	Very poor	Very good	Good	Very good
<i>Infrastructure cost</i>	Very heavy	Heavy	Heavy	Heavy	Various
<i>Infrastructure maintenance cost</i>	High	High	Low	Low	Various
<i>Vehicle size</i>	<3000t	<40t	>3000t	<100t	<5000t
<i>Door-to-door potential</i>	Low	Very high	Very low	Low	Very low
<i>Suitable cargo (packing)</i>	All	General cargo	All	General cargo	All
<i>Economical distance</i>	Long	Short	Long/very long	Long/very long	Long

(Source: Ma, S (1998), 'Eco 100: Transport Economics', Lecture notes, World Maritime University.)

### 1.1.2 Cost Comparison among Different Modes

In a simplified way, let's first look at a comparison of unit costs among different modes of transport. A general conclusion can be drawn from Table 2 that waterborne transport is much cheaper than land based and air transport.

Table 2. **Unit Costs of Different Modes of Transport**

In US \$

<i>Transport Modes</i>	<i>Unit costs</i>
Air Freighter	5.0 - 10.0 cents / ton. km
Road Haulage	3.0 - 8.0 cents / ton. km
Rail Transport	0.75 - 5.0 cents / ton. km
Sea Transport	0.1 - 2.0 cents / ton. km

(Source: Ji, H: 'Maritime Transport Industry & the Development of National Economy', *China-OECD Maritime Policy and Practice Seminar 1997*, Paris: OECD.)

If we want to be more accurate in comparing costs of different modes of transport, it would be more sensible to look into the relationships between transport cost and distance covered among these five major modes of transport. Different relations are illustrated in Figure 1.

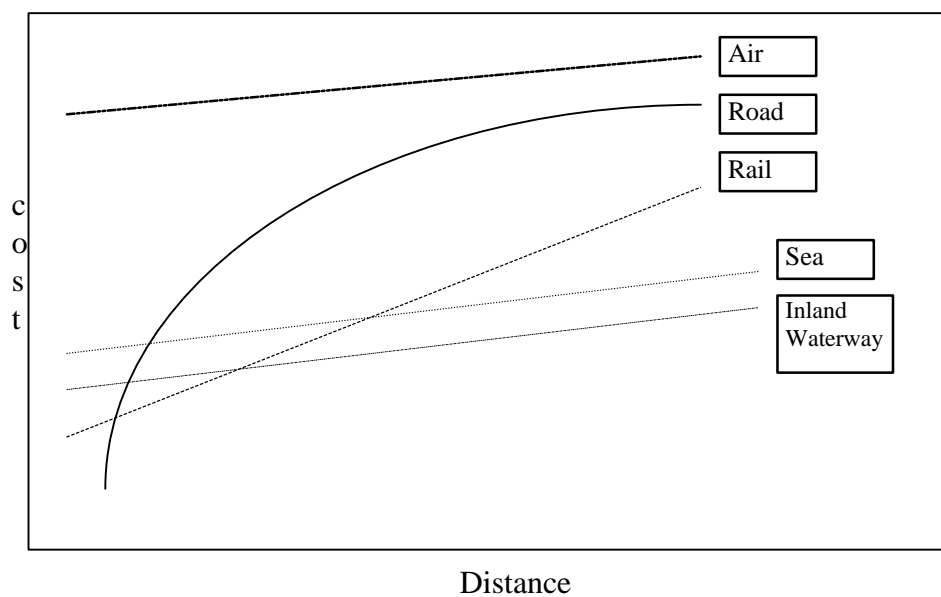
Sea transport is certainly very suitable for long distance carriage, while road haulage is more reasonable for a shorter distance transport. From the economic point of view, with the existence of railways and/or inland waterway networks, the economic distance of road transport is within 300 km; therefore, it is suitable for shorter distance haulage and the collecting and distributing movement to and from terminals.

The high fixed cost element in rail transport, such as very heavy infrastructure investment and maintenance cost, generally requires a certain length of haul in order to make this mode a viable alternative. However, though short hauls of containers on

rail would be considerably more expensive than by road, the variable costs of rail transport increase less than do those of road transport, where costs vary more proportionately with transport distance.

In the case of inland waterway transport, the cost will be on the whole much lower than the others, especially for long distance haulage, because natural waterways provide navigation channels and the initial investment costs of infrastructure are only limited to the provision of navigational aids and terminal facilities.

Figure 1. **Relationship between distance and cost for different transport modes**



(Source: Based on Ma, S (1998), 'Eco 100: Transport Economics', Lecture notes, World Maritime University.)

In addition to transport cost, another important factor which should be taken into account is environmental problems caused by each of the three modes of inland transport.

If the three modes are compared, it may be seen that road transport causes the most serious pollution to environment, and rail transport is next, while inland waterway transport causes the least environmental problems. This has become a



more and more important factor in deciding which mode has priority to be selected in the multimodal transport chain because of a world-wide growing awareness of environmental protection. Being both cost-effective and environmentally friendly, the inland waterway transport, once applicable, seems to have priority to be further tapped in the multimodal chain.

## **1.2 Containerisation and Multimodal Transport**

### **1.2.1 World-wide Containerisation Trend**

With the advent of containerisation and container liner shipping, the modern integrated multimodal transport system of sea, railways, roads and inland waterways was introduced into practice, and has ever since been undergoing a very rapid development in the past few decades. 'If you want to use the advantages of containers to the fullest extent, you should never concentrate too much only on the maritime aspect while neglecting the inland aspects' (C S Publications Conferences, 1982, 3). Consequently, it is containerisation that has given rise to the need for multimodal transport.

In recent years more types of cargoes have been containerised, which used to be carried by sea in general cargo forms. Nowadays well over 60% of the world ocean-going general cargo moves in containers. In speaking of the multimodal transport concerning sea-borne cargo, it is mainly the container liner shipping that is involved, rather than tramping services. Container liner shipping has been undergoing rapid progress. Container vessels have also been built bigger and bigger, from about 1,000 TEU vessels up to 6,600 TEU jumbo vessels in today's operations. These big container vessels can only call at a few hub ports (or centre ports), where containers are either carried to the so called feeder ports by feeder vessels, or distributed to the hinterland by road, rail or inland waterways.

Even more encouragingly, some bulk commodities are beginning to be containerised. More and more food commodities, such as bananas, coffee, fresh fruits

and so on, have been transported in containers instead of in bulk. Even for rice and other grains, which are presently transported in bulk, there has been a tendency to transport this kind of typically bulky commodities in containers. It has been estimated by some maritime experts that eventually the containerised grain transport will reach 70% of the world total seaborne trade of grain. (Ta Kung Pao, 22 June 99). Therefore, despite the cyclical recessions of the world shipping market at present, many major container ship owners and operators still continue to expand their fleets, based on their confidence in a growing number of containers in the world shipping market. For instance, one of the world leaders in liner trade, Maersk Line has already had over ten 6,600-TEU container vessels built, and it still keeps a steady plan of new buildings of big container vessels. For over 5,000 TEU vessels, it has 14 ships on order for 1999, and 19 for 2000, the total capacity of which will be nearly 200,000 TEUs. For the world container market as a whole, by the end of 1997, the world container ship fleet totalled over 2,200 ships and 3.63 million TEU slots, which was an increase of 12.8% in terms of ships employed and 17.6% in terms of TEU capacity over the previous year. (UNCTAD, 1998, 17). A much bigger increase rate of slot capacity gives an indication of the current trend in container ship construction of fewer vessels but of greater TEU capacity.

‘The concept of containerisation has grown from the simple, traditional view of moving containerised cargo between two points to today’s view that encompasses understanding, managing and controlling the overall economics and physical flow of cargo in a seamless and total move. This includes related costs and issues of inland and ocean movements, as well as manufacturers’ inventory, production and demand costs.’ (Muller, 1995, 23). This exactly suggests that the world-wide containerisation revolution has eventually resulted in a totally new approach in the transport industry, that is the approach of multimodal transport.

### 1.2.2 Concept of Multimodal Transport

The idea of multimodal transport is that a product is brought from the door of its origin, the manufacturer, to the door of its destination, the end user, by making use of at least two modes of transport, which is also commonly known as the door-to-door service. It is containerisation in the shipping industry that has made the door-to-door transport a widespread practice in today's transport field. The multimodal system is 'an optimisation process of the location, movement and storage of resources from the point of origin, through various economic activities, to the final consumer'. (Alderton, 1995, 204).

In accordance with *the United Nations Convention on International Multimodal Transport of Goods*, "international multimodal transport" is defined (in Article 1) as 'the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country. The operations of pick-up and delivery of goods carried out in the performance of a unimodal transport contract, as defined in such contract, shall not be considered as international multimodal transport.' As a modern efficient organisation mode of transport, multimodal transport is characterised with one striking feature of 'one charge, one document, and entire trip liability' (Sino-Dutch Joint Committee, 1998, 12). A multimodal transport operator is responsible for the fulfilment of the multimodal transport contract and charges the shipper only once for the freight of the entire trip. Only one contract of carriage, a multimodal transport document, is used for the entire trip.

From the above-mentioned definition, it can be inferred that multimodal transport is characterised by the following facts:

(A) It is a **Service Activity**, which refers to the carriage of goods under a transport contract between the multimodal transport operator (the MTO) and its client;

(B) It is a **Commercial Activity**, which should be performed by qualified international transport operators and which, therefore, requires a legal framework to ensure minimum standards in the provision of services and some protection of the interests of the various commercial parties involved;

(C) It is an **International Activity** by which goods pass from one country to another and use various transportation modes, involving different fiscal regimes and responsibility regimes, which must be harmonised.

( UNCTAD Secretariat, 1994b, 20 ).

Multimodal transport is a service innovation by which the MTO assumes a contractual responsibility to move goods from a point of origin to a destination under a transport contract, for an agreed price with a time-limit for the delivery. This service innovation ensures that the goods will move to their destination as fast and securely as possible, at a cost known in advance. This further reveals the following features of multimodal transport, which might be the most striking ones.

(i) **Reduced Door-to-door Transport Time.** By multimodal transport, transport operations are always carried out at a faster speed, which reduces the total transit time. One of the major reasons for this is that since there is only one operator, i.e. MTO, in charge of the whole transport, he is capable of intercepting the cargo whenever there is a change of mode and ensuring that this change is affected without delay. There is also another reason which might account for the fastest possible delivery by the MTO. He wants the container to come back as soon as possible after the delivery of cargo so that he can have a higher utilisation ratio of the container and eventually earn more freight. (UNCTAD, 1997, 131).

(ii) Cost-effectiveness. By utilising multimodal transport, both MTOs and shippers will be able to have an idea about the total transport cost before the transport actually commences. This will ensure an effective control of transport cost. The reduction of transit time by multimodal transport will also lead to a reduction of financing costs, simply because the interest payment period will be made shorter after the transit time is shorter.

(iii) Reliability. Since being closely controlled by a single operator, i.e. MTO, seamless transport is guaranteed at each stage of the multimodal chain. The transport process is thus made more reliable. As a result, breakdowns in the supply or distribution process are reduced to a great extent, which will lessen the need for safety or buffer stocks for shippers or consignees. (UNCTAD Secretariat, 1994b, 12).

In order to eliminate the possible confusions which might occur when considering the transport of goods on one document by more than one mode of transport, it is necessary to distinguish between multimodal transport and the various types of transport as follows:

**MULTIMODAL TRANSPORT:** if the carrier that organises the transport takes the responsibility for the entire transport, he issues a multimodal transport document.

**SEGMENTED TRANSPORT:** if the carrier that organises the transport only takes responsibility for the portion he is performing himself, he may issue an intermodal bill of lading.

**UNIMODAL TRANSPORT:** is the transport of goods by one mode of transport by one or more carriers. If there is only one carrier, he issues his own transport document, e.g. a bill of lading, an air waybill, a consignment note, etc. If there are more than one carrier, for example, carriage from one port via another port to a third port with transshipment at an intermediate port, one of the carriers may issue a “through bill of lading” covering the entire transport. Depending on the back

clauses of this through bill of lading the issuing carrier may be responsible for the entire port-to-port transport or for only that part which takes place on board his own vessel.

**COMBINED TRANSPORT:** is the transport of goods in one and the same loading unit or vehicle by a combination of road, rail and inland waterway modes.

**INTERMODAL TRANSPORT:** is the transport of goods by several modes of transport from one point or port of origin via one or more interface points to a final port or point where one of the carriers organises the whole transport. Depending on how the responsibility for the entire transport is shared, different types of transport documents are issued.

(Castro, 1996, xv).

### **1.3 Benefits of Multimodal Transport**

The cost and quality of transport services will have considerable impact on the development of national production as well as foreign trade activities. With the introduction of multimodal transport, the transport industry has been experiencing a revolutionary phase both in cost savings and service quality upgrading.

An effective multimodal transport system will bring short-term benefits to local traders and transport operators, as well as longer-term consequences in the structural changes of a country's transport and international trade development.

There are three key players involved in the multimodal transport operation, viz. service providers, transport users and the Government. Service providers, including modal carriers, freight forwarders, MTOs, banking institutions, insurance companies and so on, can offer market-oriented MT operations within the framework of national and international trade and transport practices. Transport users, including importers and exporters, can take advantage of MT operations in their international trade transactions. The Government designs and implements national laws and regulations regarding trade and transport.

### 1.3.1 Short-term Benefits

#### (A) For service providers

Service providers could gain benefits from multimodal transport as follows:

- a. Boosting their profession as international transport operators (especially for freight forwarders becoming MTOs);
- b. Increasing their local market shares and opening new markets overseas;
- c. Increasing their financial liquidity through the collection of prepaid freight on containerised door-to-door transport contracts, providing them with key financial leverage and with the possibility of sub-contracting shipping, railway and truck space at competitive rates while controlling sub-contractors' payment schedules;
- d. Commercial incentives to adapt to transport-related technologies, such as containerisation and EDI;
- e. The need to reconsider their marketing strategies and, for example, concentrate their activities in "niche" operations to serve specific commodities on specific trade routes.

#### (B) For transport users

Transport users can expect economic and financial benefits from the multimodal transport in the form of:

- a. Reduced transit time; punctuality; and increased cargo security, particularly at interface points;
- b. Reduced transport costs (e.g. from negotiated volume rates) and other associated costs (resulting from the use of modern transport-related technologies: containers, EDI, computerised cargo-tracking systems, etc.);
- c. Pre-agreed price for the door-to-door transport operation;
- d. Closer commercial relationships with services providers;

e. New trading opportunities from non-traditional exports, under the stimulus of improved transport services.

(C) For Governments

Governments can also benefit from the MT approach since it offers the opportunity to streamline and update trade-and transport-related administrative procedures and regulations. It also stimulates trade, promotes new activities for the country's transport sector and saves on hard currency, thus improving the country's balance of payment. Governments can stimulate innovative solutions from trade and transport partners and can promote fundamental changes in existing practices. The MT approach can also strengthen the complementarity between transport modes, instead of creating competition.

(UNCTAD Secretariat, 1994b, 23).

### 1.3.2 Long-term Consequences

(A) For service providers

In order to maintain their competitiveness and also under the customers' pressure, transport operators will have to restructure their operations, taking advantage, among other things, of joint-ventures with foreign partners. They will increasingly try to differentiate their services in an effort to gain a competitive market advantage. By offering a greater choice of available value-added services for potential transport users, they may be able to grasp larger market shares and increase their profits.

(B) For transport users

In the longer term, as reliable and efficient MT services develop, transport users will be able to look into the reorganisation of their distribution outlets. This can already be seen in some regions of the world where the simplification of border



crossings and the harmonisation of transport policies have fostered the development of new forms of logistics operations (for example, networks of logistics hubs and alliances to make modal operations more efficient).

(C) For Governments

Governments will have to plan infrastructure developments and to design institutional organisations with increased attention to the needs of the transport industry so as to serve the national economy more effectively. With regard to regulatory measures, they should be adopted to harmonise transport liability regimes and insurance practices, and to provide an appropriate legal framework for the establishment and development of MTOs. Trade and transport facilitation measures and their acceptance by the trading community, transport operators, government agencies, banks and insurance companies also need to be taken into account, such as Customs regulations, trade and transport documentation, EDI technology, etc.). Governments need to develop policy measures to ensure the smooth development of Customs and transport operations/services and to avoid misallocation of resources. Human resource development measures also need to be taken to secure the adequate training of nationals from both public and private sectors to improve management of transport operations and reorganisation of transport enterprises.

(UNCTAD Secretariat, 1994b, 24).

## **CHAPTER II**

### **Legal Regimes Governing Multimodal Transport**

#### **2.1 Legal Regimes of Unimodal Transport**

One of the central issues concerning the legal aspects during the process of any transport is the liability for loss of or damage to the goods. For various modes of transport, different transport documents are used, which normally determine to what extent carriers will be liable for loss of or damage to the goods. If the carriage is solely by road or rail, the carrier will issue a road or rail “consignment note”. If part of the movement is by air, the carrier will issue an air waybill. If the move is from port to port, the carrier will issue an ocean bill of lading. Finally, if the move is a multimodal transport, the carrier will issue a multimodal transport document, shortened as MT document or MTD. All these documents are governed either by national transport laws or by various international transport conventions.

As far as unimodal transport systems are concerned, the following major international conventions are applicable in respective areas. The convention governing road transport (mainly for Europe) is the “Convention on the Contract for the International Carriage of Goods by Road”, known as CMR, an acronym of its French title. The convention governing railways (again mainly covering most of Europe, and some countries of the Middle East and North Africa) is the “Convention Concerning International Carriage by Rail”, the abbreviation of which is “COTIF/CIM”, also according to its French title. The major international convention governing air transport is the “Convention for the Unification of Certain Rules Concerning Air Transport”, also known as the “Warsaw Convention”. Conventions in the field of sea transport include two major ones. One is the “International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading”, commonly known as the “Hague Rules” of 1924, which has two protocols, respectively known as the Visby Protocol of 1968 and the 1979 SDR Protocol; the

other is the “United Nations Convention on the Carriage of Goods by Sea, 1978”, normally known as the “Hamburg Rules”.

### 2.1.1 The CMR Convention

This convention was adopted on 19 May, 1956. Today the CMR has 21 Contracting Parties, which are countries from Central and Western Europe. Although in the strict sense the CMR is only a regional convention, it still plays a very important role in the absence of an international liability system that covers the door-to-door transport of goods, such as the one of the MT Convention. The CMR governs the European portion of multimodal transport when the mode of transport is road crossing a national border in Europe.

The main points dealt with in the CMR are the transport documents and the liability of the carrier for the loss of or damage to the goods, as well as for any delay in delivery. Other general problems of the law of contracts will be governed by the national law in force.

In Article 2 of the Convention, it is stated that ‘ ... when a vehicle is transported by rail, sea, air ... on each part of the journey and is unloaded, the CMR governs that transport. Nevertheless, an exception has to be made with the last principle when a damage occurs during a leg of a transport which is not road and without resulting from an act of or omission of the road carrier, it is the law of that leg of transport which should be applied.’ Some situations are suggested here. If a container is originally carried by a road vehicle, and the container is later removed from the vehicle, for example, for loading on board a ferry, whereafter it is again transferred to a road vehicle, the Convention does not apply. On the other hand, if the road vehicle on which the container is carried, itself is loaded on to a ferry or a train, then the Convention applies.

The document used in connection with CMR is a consignment note or waybill, which is a document of proof of the contract of carriage, and is non-negotiable. It is issued in three originals signed both by the shipper and the carrier.

Different from what is the case for ocean bills of lading, only the first of the three originals is given to the shipper, while the second accompanies the goods and the third is retained by the carrier. The consignment note is *prima facie* evidence of the conditions of the contract and of the receipt of the goods by the carrier.

Under the CMR, the carrier is liable for loss, damage or delay in delivery of the goods. The limits of liability are set at 8.33 SDR per kilogram.

### 2.1.2 The CIM Convention

The first CIM was adopted in 1893. Afterwards it has been regularly updated and each up-date automatically cancels the previous version. The latest version of the Convention was adopted in 1980, known by the acronym COTIF according to its French title. CIM was included in COTIF as an annex. The Convention has 33 Contracting Parties, which are mostly European countries, and some other countries of the Middle East and North Africa connected to the European railway network either directly or via ferry routes.

COTIF/CIM contain a number of detailed rules particular to rail transport, both goods transport and the transport of passengers and their luggage. The CIM controls the making of the contract, its performance, liability of the carriers and their relation with one another. The exemption clauses mentioned in article 63 and applicable to maritime carriers may be used by the railway carrier. The application of the CIM is in many aspects similar to CMR.

The document of carriage under CIM is also called a consignment note or waybill, which is made out by the shipper (consignor) in one original only. Article 2 paragraph 4 of the Convention allows the use of a ticket other than the direct consignment note and to avoid the CIM regime. Despite that, the Convention does not give a full satisfaction to the multimodal transport. The limits under the CIM are set at 18.66 SDR per kilogram.

### 2.1.3 The Warsaw Convention

The Warsaw Convention was signed in Warsaw on October 12, 1929. It has 7 protocols, and approximately 140 Contracting Parties to the main body of the Convention. With regard to the limited application of the Convention for multimodal air transport, its Article 31 states that ‘nothing in this convention shall prevent the parties in the case of combined carriage from inserting in the document of air carriage conditions relating to other modes of carriage, provided that the provisions of this convention are observed as regards the carriage by air’. Air transport is the basis of the convention. Before being combined transport, the carriage is firstly by air. The other modes of transport should be considered of secondary importance.

The transport document used under the Warsaw Convention is the non-negotiable air waybill. The limits of liability for cargo are either 250 franc Poincare or 17 SDR per kilogram depending on different versions of the Convention in force.

### 2.1.4 The Hague Rules

The Hague Rules were adopted in 1924, and entered into force in 1931 and so far have 77 Contracting Parties.

The Hague Rules were essentially a compromise between shipping interests and cargo interests. In old days, shipowners enjoyed a favourable condition of incredibly wide-ranging exclusion clauses in bills of lading. After the enactment of the Hague Rules, shipowners’ liabilities were increased by the fact that a number of essential duties were imposed on shipowners which they could not escape. In the meantime, however, a comfortable number of exemptions from liability and a general monetary limitation to liability were still made for shipowners in the Hague Rules. The most important and influential of those 17 exemptions with regard to the carrier’s liabilities is the so-called “nautical fault concept”, which has been severely criticised by shippers and consignees, for being too carrier-favourable, especially in modern times when navigation is no longer as dangerous a venture as it used to be in the old times owing to many major innovations and improvements in navigation and

communications technology. Especially for shippers and consignees from the developing countries, it was held that under the Hague Rules the shipowner side was unfairly protected while too heavy a burden was placed on the shipper side. This point will be further discussed by way of comparison when talking about the formulation of the Hamburg Rules.

Another major problem the Hague Rules set out to solve was the limit of liability per package or unit. This was again greatly affected by technological progresses in the shipping industry. One of the most influential ones is the world-wide trend of containerisation. At first the limit of liability was fixed at 100 pounds sterling gold value. With the palletization and containerisation of cargo transport, the Hague Rules could be interpreted to mean that a pallet or a container could be counted as one package only, no matter how many packages it contained. This made it possible for the carrier to pay damages of only 100 pounds per container, should it be proven that he was liable for the damage.

In the Brussels conference in 1968, the so-called Visby Protocol was adopted, which amended five of the original 16 articles, and entered into force in June 1977. The Visby Protocol, together with the Hague Rules, creates a liability system, generally known as the Hague-Visby Rules. According to this Protocol, the so-called “container clause” enables the shipper to claim the allowed monetary compensation for each package inside a container or pallet if listed on the bill of lading. As inflation had risen, the limit of liability was increased to 10,000 francs Poincare per package or unit. As a second choice, the shipper could now choose, instead of the 10,000 francs, a limit of 30 francs Poincare per kilogram.

It was quite unexpected that the international monetary system’s bench-mark, the Bretton Woods system, broke down soon afterwards, so it became necessary again to amend the monetary limits. A new protocol was adopted in Brussels in 1979, which replaced the unit of 10,000 francs Poincare by 666.67 special drawing rights (SDR). This new Protocol, also known as the 1979 SDR Protocol, came into force in February 1984.

Another effect that technological developments in the industry has brought about to the Hague Rules concerns the definition of “goods”. In the rules, cargo which is shown on the bill of lading as being carried on deck is not considered as “goods”. If cargo is carried on deck but this is not so stated on the bill of lading and the bill of lading is transferred to a third party, then the carrier is fully liable for all damages without any limitations (except for loss caused by act of God, acts of war or inherent vice). While the carrier’s liability for cargo stowed in containers under deck would be 10,000 francs Poincare per package inside the container (or SDR 667 according to 1979 Protocol), the carrier’s liability for cargo stowed in containers on deck would only be 10,000 francs Poincare (SDR 667) for the entire container. (UNCTAD, 1997, 29). In today’s transport reality, over half of the world’s containers are transported on deck rather than under deck. Therefore, many carriers’ bills of lading consider containers stowed on deck as “under deck” cargo. Here those related provisions in the Hague Rules seem to have become outdated with the new technological developments which have taken place in the shipping industry.

Although the Hague Rules had served world ocean transport reasonably well for so many years, their various drawbacks had also become more and more obvious. One of the most important concerns, shared by many developing countries, had been that their interests as shippers’ countries were not sufficiently covered by the Hague or Hague-Visby Rules. Furthermore, it also became obvious that technological progress had made it necessary for the Rules to be amended or even replaced. Eventually, it led to the formulation of a new convention, which was afterwards known as the “Hamburg Rules”.

#### 2.1.5 The Hamburg Rules

The Hamburg Rules were signed in Hamburg, Germany in March 1978, and entered into force on November 1, 1992.

As mentioned above, the Hamburg Rules were drafted in an attempt to serve as an alternative to the Hague Rules. The major arguments for replacing the Hague

Rules came from developing countries. Firstly, it was held that the Hague Rules unfairly over-protected shipowners' interests, while placing most of the economic responsibilities on shippers or consignees, who were mainly from the developing countries. Secondly, there were quite a few ambiguous provisions in the Rules, which had become no longer in pace with the progress of times. Thirdly, overlapping insurance by both cargo and ship interests was created, which was merely a financial waste. If the cargo loss or damage claims could be wholly covered by the shipowner's P&I insurance, the cargo interest then need not to arrange cargo insurance in this regard, and hence could avoid the double insurance for cargo loss or damage.

In the Hague Rules, the carrier shall exercise due diligence before and at the beginning of the voyage to make the vessel seaworthy and to take care of the cargo, while, in the meantime, the carrier enjoys 17 exemptions in case of fault or neglect in the course of the navigation or management of the vessels or other reasons. These specific exemptions were eliminated in the Hamburg Rules; instead, the principle of "presumed fault or neglect" was introduced to determine the carrier's liability. Only the exemption concerning 'fire' was retained. That is to say, the carrier shall be liable in case of fire only when it is proven that the loss or damage is caused by the fault or neglect of himself or his servants or agents, and the burden of proof would be on the claimant's side.

With regard to period of responsibility, under the Hamburg Rules, the carrier is liable from the time he has taken over the goods in the port of loading until the time he has delivered the goods at the port of discharge. In other words, the "tackle-to-tackle" (or rail-to-rail) limitation under the Hague Rules has been extended to cover the port area as well. The carrier's liability was obviously increased greatly.

In terms of limitation of liability, under the Hamburg Rules, it was stipulated as 835 SDR per package (or shipping unit) or 2.5 SDR per kilogram, whichever is higher. This limit was increased 25% compared to that in the Hague Rules. This increase is not very much, but because most of the import or export cargoes of



developing countries are of comparatively low value, relatively low limits of liability were adopted.

Under the Hamburg Rules, the carrier would be liable for deck cargo, live animals, and also for delay in delivery. The time bar for claims was extended to two years, one year more than that under the Hague Rules. The carrier's liabilities were again increased.

The Hamburg Rules also introduced some other important innovations. For instance, it is possible to use transport documents other than bills of lading. This is important in view of the diminishing role of the bill of lading. Liability lies not only with the contracting carrier, but also with the actual carrier. This is in line with the Warsaw Convention. There are specific rules dealing with letters of guarantee, notice of damage, jurisdiction and arbitration.

Although shipowners world-wide have been strongly opposed to the Hamburg Rules, especially regarding the elimination of the "nautical faults defence", the new Rules eventually entered into force in November, 1992 after having had 20 Contracting Parties by the previous year.

## **2.2 International Legal Framework for Multimodal Transport**

### **2.2.1 The MT Convention**

More than one of the unimodal transport conventions discussed in the above sections will be applied if the carriage of goods is performed by a combination of modes of transport. These different legal regimes are mutually exclusive to some extent, and conflicting with each other in some cases, and thus unpredictable and confusing to shippers as well as to transport providers. Therefore, there has been an urgent need for a uniform legal regime to be established under which multimodal transport is governed. That is why the United Nations Convention on International Multimodal Transport of Goods (the MT Convention) was brought onto the scene in May, 1980. Thirty Contracting Parties are required for its entry into force, which has

not been satisfied yet. Therefore, it is really a very disappointing fact that the MT Convention has so far not yet come into force, despite the urgent need in practice for such a legal instrument.

If unimodal liability regimes must be applied to a contract which combines several modes of transport, confusions or chaos will inevitably be created. To set up a liability regime for multimodal transport, two basic possibilities might be explored.

One possibility is the so-called network system, the prime function of which is to harmonise the existing systems of carrier liability (usually contained in international conventions), and to make their particular rules applicable in a situation where more than one means of transport has been used. A pure network system, which is based upon the existing liability regimes without any additions, will be able to function, only when the location where loss or damage has occurred can be identified. In many cases, however, such a localisation will not be possible. In order to remedy this defect, the network system can be modified by adding a catch-all provision for these cases of unlocalized loss or damage. The modification should be statutory and not contractual in nature in order to promote uniformity.

Another possibility is the creation of a uniform system, which operates on a separate level from the underlying unimodal conventions. The contract for the multimodal carriage of goods exists as a separate entity, regardless of the means of transport actually used, and is subjected to a uniform system of liability, which remains the same during the whole carriage, from the taking over of the goods by the carrier until delivery. It has been endeavoured to demonstrate that from a technical legal point of view, a uniform system is preferable. The MT Convention is just an attempt in advocating such a uniform system of liability, governing the entire carriage from end to end.

The MT Convention was developed largely based on the Hamburg Rules. The structure of the latter was almost exactly followed in the MT Convention, which consists of the following parts: I. General provisions; II. Documentation; III. Liability

of the multimodal transport operator; IV. Liability of the consignor; V. Claims and actions; VI. Supplementary provisions; VII. Customs matters; VIII. Final clauses.

The MT Convention sets out to unify the present multitude of liability systems in use in multimodal transport. Its mandatory provisions mainly concern compensation for loss of, or damage to, the goods as well as compensation for delay in delivery. There is the freedom of the consignor to choose between multimodal transport and segmented transport, which reflects a high degree of flexibility in the MT Convention.

In building up the uniform liability system under the MT Convention, two types of damages occurring in multimodal transport need to be identified. One is the damage to goods which can be localised, i.e. it is possible to determine on which mode of transport the damage occurred; the other is the damage to goods which is non-localised or “concealed”, i.e. it is impossible to determine where the damage occurred.

In case of localised loss or damage, the precise rules relating to the specific mode might be incorporated into the multimodal transport contract. In such case, the claimant would be placed in the same position as he would have been if he had entered into a specific contract for that part of the transport. This is the so-called “network liability principle”. Obviously, the application of this principle should be based on the fact that loss or damage can be localised to a specific segment of the transport. However, the network system has a limited operation in practice, since it hardly has any practical effect upon the liability of the MTO.

In many cases it will not be possible to pinpoint where the damage took place, since loss or damage ordinarily will not be discovered before the goods have arrived at their destination and it will then remain unknown where and under what circumstances the loss or damage has occurred. Then it will not be possible for the MTO to recover from his subcontractors what he might have to pay to his customer. This inability to recover from a subcontractor, because the mode where the damage took place cannot be identified, represents by far the greatest risk for the MTO. It

exists equally under the Hague Rules, the Hamburg Rules, the MT Convention and the UNCTAD/ICC Rules for Multimodal Transport Documents for that matter.

The pure uniform system provides one uniform set of rules of liability with uniform limits. A pure uniform system with limits based on those operating at sea, including the Hague Rules, the Hague-Visby Rules, or the Hamburg Rules, would deprive shippers of taking advantage of the higher limits of liability available under other modal conventions, such as the Warsaw Convention, the CIM or the CMR. The MT Convention has adopted a mixture of the two systems in that it has uniform rules of liability, but varying limits of liability depending on a number of factors.

In setting a limit of liability for non-localised claims, the MT Convention differentiates between two situations. In case of multimodal transport including a maritime segment, a limit which is only slightly over that set by the Hamburg Rules is established. The limitation here is either SDR 920 per package or SDR 2.75 per kilogram. In case of a multimodal transport move without a sea leg, the lowest internationally recognised land transport convention limit in force, that of the CMR, is used, i.e. SDR 8.33 per kilogram. In this case, there is no package limitation.

In case of localised damage, that is when it has been possible to determine during which mode the damage took place, the MTO's liability will depend on the level of limits of liability in force for that particular mode if an applicable international convention or mandatory national law provides a higher limit of liability than the limits mentioned previously. While several international conventions have higher per kilogram limits than the MT Convention, the package limitation of the MT Convention may effectively produce a higher limitation amount than those of the other conventions. The result of this will be that the MTO's liability is likely to exceed that of his subcontractor. In this case he will not be able to recover as much from his subcontractor as he may be required to pay to a claimant. This will presumably encourage MTOs to select their subcontractors with great care and take extra precautions to reduce or avoid loss or damage.

A uniform liability system is essential for the development of multimodal transport. Unfortunately, however, it has been a rather slow progress for the entry into force of the MT Convention. Some people hold that it might not be the wisest choice for UNCTAD, a UN organisation, to prepare a convention as such, since many political issues, which have no place in a technical subject such as carrier liability, were raised. The original notion of uniform liability was bitterly opposed by a large number of states representing important carriage interests. The main argument was that conflicts would inevitably arise between a mandatorily applicable Multimodal Convention on the one hand, and the equally mandatory unimodal conventions on the other. Therefore, if a new convention were to be drafted, it might be a viable solution to incorporate some form of a modified network system into this new convention.

#### 2.2.2 The UNCTAD / ICC Rules

Because of the general reluctance to ratify the MT Convention, the international community decided to introduce an interim measure, which would assist traders and transport providers to conduct efficient multimodal transport operations during the period until the MT Convention enters into force. Consequently, UNCTAD, together with the commercial parties, represented by the International Chamber of Commerce, formulated a set of rules for voluntary application between the parties to a multimodal transport contract. These new rules are called the UNCTAD/ICC Rules for Multimodal Transport Documents, which came into force in January, 1992.

The Rules are available for world-wide application and are acceptable to the international banking community being fully compatible with the latest revision of the ICC Uniform Customs and Practice for Documentary Credits (UCP - ICC 500). However, the Rules only cover a part of the customary contents of a multimodal transport contract. An MTO wishing to use the Rules as the basis for his multimodal

transport contract must add other clauses dealing with certain matters to satisfy his particular needs.

The UNCTAD/ICC Rules consist of thirteen rules. Many of these rules are the same as the MT Convention and the most significant differences are predictably in the provisions relating to the limits of liability of the MTO.

Under the Rules, the MTO is liable for loss of or damage to the goods or delay in the delivery of the goods if the occurrence causing the loss or damage or delay in delivery took place while the goods were in his charge unless he can prove that no fault or neglect of his own or his servants or agents was responsible for the occurrence or contributed to it. The liability for delay in delivery of goods is operative only if the shipper has made a declaration about his interest in the timely delivery, which has been accepted by the MTO. An MT document can be either negotiable or non-negotiable as per the requirements of the consignor.

The limits of liability of the MTO in the UNCTAD/ICC Rules is 8.33 SDR per kilogram of the goods lost or damaged, if the multimodal transport did not include sea transport. If sea transport was included in the MT contract, the liability of the MTO is lowered to 667.67 SDR per unit or 2 SDR per kilogram of the goods lost or damaged and this is the same as the limits of liability laid down in the Hague Rules. In the Hamburg Rules the liability of the carrier would be 835 SDR per unit or 2.5 SDR per kilogram of the goods lost or damaged. In case of loss resulting from delay in delivery of goods the MTO's liability is limited to the amount of freight payable for the goods and the aggregate liability for loss, damage or delay would not exceed the limits of liability for total loss of the goods.

If the loss of or damage to goods could be localised to a certain leg, the shipper could claim a higher liability as permitted in the law applicable to the particular segment, whereas if the loss or damage could not be localised, the claim would be on a uniform basis as mentioned above. The MTO would lose the right to limit his liability, if the claimant could prove that the loss of or damage to the goods or delay in delivery resulted from an act or omission of the MTO done with the intent

to cause such loss, damage or delay or recklessly and with knowledge that such loss, damage or delay would probably result.

As a temporary and transitional measure, the UNCTAD/ICC Rules are intended to bridge gaps or make some compromises between the MT Convention and the existing unimodal regimes. For instance, the higher limit of liability for the MTO under the MT Convention, which is slightly higher than that in the Hamburg Rules, has been lowered to the limit of liability in the Hague-Visby Rules. As a result, it might be more acceptable to the MTOs, many of whom are major shipowners. The exceptions in the Hague Rules of errors in navigation and management of the vessel, which might be good grounds for shipowners to escape liability for loss of or damage to the goods, and which were removed in the Hamburg Rules, have been brought back in the UNCTAD/ICC Rules. This, again, is an intention of being more realistic in today's context for multimodal transport by being more in the shipowners' interests.

On the whole, these Rules, which constitute a model contract for multimodal carriage, are trying to be more commercial and more practical in application. They are also fully compatible with other international laws and take into account different laws and regulations at a national level. They reproduced the MT Convention to a large extent; therefore, if they prove to be successful in practice, the MT Convention will be given new impetus to become effective sooner in practice.

### **2.3 Chinese Regulations Regarding Multimodal Transport**

Although multimodal transport has started in China quite some time ago, especially after the soaring growth of container traffic in recent years, legislation with regard to multimodal transport has been greatly lagging behind. Only in 1997 did the Regulations Governing International Multimodal Transport of Goods by Containers, jointly promulgated by the Ministry of Communications and the Ministry of Railways, come into force. As regulations at a ministerial level, these Regulations

were mainly based on the Maritime Code of the People's Republic of China and the Railway Law of the People's Republic of China and some other rules and regulations issued by the same two Ministries. Bearing a nature as such, these Rules serve more as an administrative measure rather than a commercial code governing multimodal transport. Many public law provisions are involved in the Rules, which have little to do with the contract of carriage as such but rather with state organisation, administration and control procedures concerning multimodal transport operations in the country.

These Regulations comprise eight chapters, which are as follows:

Chapter 1, General Provisions;

Chapter 2, Regulation and Control of Multimodal Transport;

Chapter 3, Multimodal Transport Document;

Chapter 4, Liability of the Consignor;

Chapter 5, Liability of the Multimodal Transport Operator;

Chapter 6, Notice in Writing and Actions;

Chapter 7, Penalties;

Chapter 8, Supplementary Provisions.

The Rules cover the main issues involved in multimodal transport operations, the structure of which bears some similarities with the MT Convention, only in a much simplified form in its formulations.

Chapter 2 mainly deals with the qualifications and requirements for multimodal transport operators, and also the application and approval procedures for setting up a multimodal transport enterprise. It is noted that at present an approval system is adopted in China for the engagement in multimodal transport activities.

Chapter 3, consisting of only three articles, mainly stipulates the contents of the multimodal transport document, which are almost identical with the items prescribed in the MT Convention. Conditions for negotiability and non-negotiability of the multimodal transport document are also laid down here.



Chapter 4 is about the consignor's liability. The consignor shall be liable for loss caused to the multimodal transport operator or third parties by the fault or neglect of the consignor, but not including his servants or agents. This is a different point from the MT Convention. Provisions governing the consignor's liability concerning dangerous goods are very similar to the MT Convention.

Chapter 5 concerns liability of the multimodal transport operator. The MTO's responsibility for the goods covers the period from the time he takes the goods in his charge to the time of their delivery. This is the same provision as in the MT Convention. The MTO shall be liable for loss of or damage to or delay in delivery of the goods which happened while the goods were in his charge. If the loss, damage or delay can be localised to a particular stage of the multimodal transport, the MTO's liability and its limitation shall be governed by the relevant laws and regulations of that particular stage of transport, which means that the network principle applies. If the loss or damage can not be localised to a particular stage of the multimodal transport, the limitation of liability for the MTO shall be either governed by the Maritime Code of the People's Republic of China, if a sea leg is included in the carriage, which means that a limitation similar to the Hague-Visby Rules applies, or governed by other relevant laws or regulations, if no sea leg is included. The MTO will lose the right to limit his liability if it is proved that the loss, damage or delay in delivery resulted from an act or omission of the MTO done with the intent to cause such loss, damage or delay or recklessly and with knowledge that such loss, damage or delay would probably result. This is exactly the same provision as in the MT Convention.

In Chapter 6, two cases are provided for as regards the time bar for actions. Where the multimodal transport includes a sea leg, any action against the MTO shall be time-barred if proceedings have not been instituted within a period of one year; where the multimodal transport does not include a sea leg, any action against the MTO under the General Rules of Civil Law shall be time-barred if proceedings have not been instituted within a period of two years.

Chapter 7 again is for administrative purposes in regulating or rectifying the multimodal transport activities of the country.

The final Chapter stipulates another requirement for the MTOs to submit annual reports of their operations to the competent authorities, which is also meant to enhance the administration and regulation of multimodal transport activities.

## **CHAPTER III**

### **Multimodal Transport Operators**

#### **3.1 Multimodal Transport Operators and their Categories**

##### 3.1.1 Definition of an MTO

A Multimodal Transport Operator is “ ... any person who on his own behalf or through another person acting on his behalf concludes a multimodal transport contract and who acts as a principal, not as an agent or on behalf of the consignor or of the carriers participating in the multimodal transport operations, and who assumes responsibility for the performance of the contract.” ( MT Convention, 1980, Article 1).

##### 3.1.2 Types of MTOs

There are two major different types of MTOs, i.e., vessel-operating MTOs (VO-MTOs) and non-vessel-operating MTOs (NVO-MTOs).

VO-MTOs are normally ocean carriers involved in other modes of transport besides ocean shipping activities either by direct ownership and operation of other modes of transport such as road, rail or air, or by subcontracting them with operators in the respective sectors.

NVO-MTOs are further subdivided into three different categories.

The first one refers to those transport operators, other than ocean carriers, who often own only one type of transport means, such as trucks, railways or aeroplanes.

The second one refers to those who do not own any means of transport, and thus have to subcontract for all modes of transport while engaging in multimodal transport. The typical examples of this kind may include freight forwarders, Customs brokers or even warehouse companies or terminal operators.

The third type is sometimes referred to as Intermodal Management Companies (Muller, 1995, 137), which is in appearance very similar to the second one, for they also do not own any means of transport. They have been established with the exclusive aim of providing multimodal transport services. The essential point for this kind of companies is to control a sufficient volume of cargo so as to be able to subcontract on competitive terms for all modes of transport as well as other related services.

### **3.2 Basic Requirements for Being Multimodal Transport Operators**

#### **3.2.1 Operational Qualifications for MTOs**

From the operational point of view, there are some essential requirements for anybody who wants to serve as an MTO. Having financial capability, expertise and an international network of agents or offices might be the three most important ones. (UNCTAD, 1997, 139).

##### **(A) Financial Capability**

An MTO should be financially capable of meeting all his commitments, including his liability to the consignor. Since an MTO acts as a principal, not as an agent, he should be fully capable of undertaking the liability for indemnifying shippers in case of loss of or damage to cargoes. He should have a minimum working capital, or paid up capital ( in the case of a company ) and assets of a minimum value, and be covered by insurance, depending upon the extent of multimodal transport operations proposed to be undertaken.

It is especially essential in the case of a NVO-MTO. Normally speaking, a VO-MTO is financially better capable of undertaking MT activities, since he has already invested heavily in vessel operating business. For a NVO-MTO, especially for those who do not own any means of transport, such as a freight forwarder, it is quite necessary to have a minimum capitalisation requirement for him to be engaged

in MT business. If there is no such requirement in the case of a freight forwarder engaging in MT activities, it is quite possible for so-called “briefcase companies” to emerge in the multimodal transport market. There are always some speculative people who want to venture to make huge profits with very moderate investments. If they try to do so by becoming irresponsible MTOs, when claims are being made against them, they can be nothing but “briefcase companies” for shippers who are suffering losses of or damage to their cargoes. Therefore, having a sound financial standing is an essential prerequisite to serve as an MTO, whether vessel operating or non-vessel operating.

If an MTO has sufficient commercial status and a very good financial standing, his documents will be recognised under the rules of documentary credits and be accepted by banks and other institutions advancing credit against goods in transit.

#### (B) Expertise and Competence of Personnel

Multimodal transport is a highly sophisticated area, which involves so many other activities, and which in itself, as a matter of fact, is a process of organising different modes of transport in fulfilling the task of door-to-door services for various kinds of shippers. To handle such a business, it is obvious that a high level of expertise and competence is required.

At the commercial level, MTOs need to obtain large amounts of knowledge and experience regarding the situation of the transport market as a whole, and the markets for particular transport sectors as well. It needs a marketing team of well-trained personnel, who will be able to conduct market research and analysis, and afterwards to carry out target oriented marketing activities. All important commercial information concerning the latest market situation should be available after market researches, such as the rate levels and cost structures of actual transport providers and terminal operators, and so on.

At the operational level, MTOs also need to be manned by personnel who are familiar with government policies and regulations concerning trade development in general and multimodal transport in particular, and documentary procedures, customs practices and all other formalities and procedures regarding cargo movement. Knowledge about trade facilitation measures is also of great importance for MTOs, because by taking advantage of these measures their MT operations could be made more efficient and effective.

At the technical level, MTOs should also have knowledge about the peculiarities and technicalities of different modes of transport, based on which better choices of organising different modes of transport could be made. The communication and information technology has become more and more influential to every industry. Multimodal transport is no exception. Therefore, the application of information technology in MT operations has raised higher requirements for MTOs' personnel in this regard.

#### (C) An International Network of Agents or Offices

Multimodal transport is by nature an international business. MTOs can not confine their operations to just a local area. Therefore, it is necessary for MTOs to establish subsidiaries or agents at different ports or places covered by their MT operations all over the world.

While having ownership or control of physical means of transport engaged in MT operations, MTOs have also developed storage and warehousing facilities in port areas and inland depots in different parts of the world covered by their services.

Thanks to modern progress in communication and information technology, MTOs' world-wide network of subsidiaries and agents are linked to their headquarters or connected with each other by electronic means, such as EDI.

### 3.2.2 Different Qualified MTOs

Although the essential requirements or qualifications for a Multimodal Transport Operator are basically same no matter whether it is a VO-MTO or a NVO-MTO, each type of companies may have its own strengths and weaknesses while acting as a MTO because of the different expertise they have been developing in their own areas as well as limitations coming out of their different operational backgrounds. This can be reflected in the following representative examples.

#### (A) Liner Shipping Companies

With regard to financial standing and capability, since liner shipping companies have already invested heavily while being engaged in liner shipping activities, they are financially strong enough to meet the capital requirements in starting multimodal transport ventures. Since a single liability regime covering the entire MT trip applies in multimodal transport operations, an MTO should be financially capable to meet the claims that might arise during the MT process. Liner shipping companies have such financial capability to meet claims.

In terms of expertise and competent staff needed for MT activities, liner shipping companies have been in the position of knowing multimodal operations better than many others, because they have been involved in this business since the inception of the concept. Liner shipping operators have accumulated sufficient expertise and knowledge in dealing with activities at the land/water interface points, such as the terminal operations, Customs procedures, etc. which are of crucial importance in the whole chain of cargo transit. Some of the liner companies are involved in the terminal operations themselves. Liner trade operators have also built up very close relations with land transport operators all the way through their business development process. Many of them have even extended their business in the land transport areas themselves. This is no doubt an additional expertise for liner trader companies to serve as MTOs.

As regards the coverage of an international network, by being involved in a very complicated process, most liner shipping companies have already established a

widely spread network all over the world, which is equipped with both qualified staff and highly developed modern technology, such as EDI and other modern communication connections. Such a network covers both ends of the trade, which enables to satisfy the needs of both shippers and consignees on an actual door-to-door basis.

In addition, in guiding their customers in trade-related matters, liner shipping MTOs are capable of giving their clients effective guidance to choose optimal MT combinations for certain trades, based on its versatile expertise and knowledge in all areas of multimodal transport.

From the various aspects enumerated above, conclusions can be drawn that, in offering multimodal transport services, liner shipping companies might be in a very favourable position to act as multimodal transport operators.

#### (B) Freight Forwarders

The traditional role of a freight forwarder is to act on behalf of the cargo interests (either shippers or consignees) to make the arrangement of all segment transport needed in the process of import or export. While doing all these, it does not assume any liabilities for all transport activities involved. Multimodal transport is by nature an organisational process, which has been an essential part of a freight forwarder's daily job.

Since freight forwarders have been engaging in the arrangements of all segmented transport all the time, which constitutes the fundamental part of multimodal transport, they are already familiar with multimodal operations. Therefore, the strength of freight forwarders serving as NVO-MTOs lies in the fact that they already have very high expertise and sufficient knowledge in the field of multimodal transport compared with new entrants in the area.

They are good at a series of ancillary cargo services, such as cargo consolidation, stuffing and stripping, documentation, insurance, warehousing, etc.



They are also very flexible in accommodating the needs of their clients by offering them a wide choice of modal options.

With regard to having financial capabilities, this might be a major problem for freight forwarders serving as MTOs. Since acting as “pure” organisers of the actual transport activities, freight forwarders just subcontract all segment transport moves with respective carriers. Therefore, they do not directly invest themselves in facilities and equipment for any mode of transport. As a result, freight forwarders are lacking in sufficient capitalisation, as required for being a MTO in order to guarantee that the liabilities under the MT documents would be fully covered whenever they are incurred. In this regard, freight forwarders are, unfortunately, sometimes associated with the bad reputation of being “suitcase operators”. Moreover, because of their low financial standing as well as a bad reputation of undercutting rates, it is also difficult for freight forwarders to get the best services from the subcontractors for their MT end users.

Regarding the international networking requirement for being a MTO, freight forwarders might not be in a strong position as well, because, despite a handful of big players in the freight forwarding business, all others are working at a much smaller scale, compared with liner shipping companies. Since they do not have a world-wide network covering both ends of the trade, they do not have a good control over the whole MT chain.

It can be concluded that freight forwarders have their strong points in serving as MTOs, such as having extensive knowledge and expertise in the field of multimodal transport. On the other hand, however, only until they have acquired a desirable financial status and developed a network at an international level, would they be able to become effective MTOs.

### (C) Terminal Operators

There are advantages and disadvantages for terminal operators to become MTOs.

As far as financial capability is concerned, terminal operators are in the right position to be engaged in MT activities. Their heavy investment in handling facilities can well meet the capitalisation requirements to guarantee the coverage of liabilities under the MT documents.

In terms of expertise and knowledge needed for MT operations, terminal operators do not have extensive experience in the field of multimodal transport. They have several other peculiar strong points, which might contribute greatly in developing MT activities.

Firstly, they play a crucial role in co-ordinating physical and documentation flows of the cargo at the land/ocean interchange points, i.e., the co-ordination of document movements and physical movement of the cargo to meet the requirements of Customs. If their role in this regard is played to a full extent, the cargo transit time at these points can be considerably reduced.

Secondly, they are also good at container inventory management and control, which can lead to a reduction of container dwell time in ports and thus maximise the utilisation of terminal facilities and reduce the capital costs of transport.

Thirdly, they usually have good connections with ocean carriers as well as land transport operators.

As regards the requirement of a world-wide network for multimodal transport, this would be a very weak point for terminal operators to act as MTOs, because their activities are usually geographically limited to their own vicinity, and they normally do not have international networks. This makes it difficult for them to exercise effective control over the whole MT chain. In addition, their main business is trying to attract clients to make use of their own facilities to an optimum extent, which, as a result, may prevent them from giving their customers unbiased guidance in making the best choice of MT services.

From the three examples discussed above, it might be concluded that each type of MTO has its own pros and cons. Advantages of one certain type might be

lacking in another, while disadvantages of one type might be avoided in another. It is important to note that some of these companies will be better qualified to serve as MTOs for their intrinsic operational backgrounds, such as liner shipping operators as analysed here.

### 3.2.3 Policy Measures in Regulating MTOs

Although it differs from country to country, generally speaking it is a world-wide situation that MTOs are rarely regulated at present. It has been held by some people that the MT industry has so far developed very well without regulations, so not to place constraints on the industry would be conducive to its development. It is quite true that overregulation for any industry will hamper or even stifle its progress. However, with regard to the field of multimodal transport, legislation and regulations at both international and national levels are certainly required, simply because the interests of all parties involved in the MT process need to be protected. The irresponsible MTOs should be prevented from coming into existence by imposing higher requirements in national legislation governing the establishment of MTOs.

Policy measures in regulating MTOs' activities might be adopted at both national and international levels. In the latter case, an international instrument, such as a code of conduct for MTOs, might be formulated, which should preferably be under the framework of the MT-Convention. Nevertheless, before the MT-Convention comes into force, such an international instrument seems unlikely to function in practice in the short term. The other option, therefore, is for individual countries to establish national legislation and regulations governing the activities of MTOs.

To formulate a national legislation to regulate MTO activities and MT operations, some essential elements, as stated in the following, need to be included in a national regulation governing MTOs.

(i) A compulsory registration system is provided for with regard to the establishment of MTOs. In other words, a company needs to be licensed by the competent authorities to start multimodal transport business.

(ii) A minimum capital requirement is laid down for being engaged in multimodal transport operations. In certain cases, a deposition of guarantees or bonds is also required when applying to be a MTO, especially in cases of NVO-MTOs.

(iii) A system for filing of rates or tariffs with a particular authority is needed so as to reach an acceptable rate structure for multimodal transport operations.

(iv) A system should also be established where MT documents could be approved by and filed with a relevant authority in order to ensure that such documents conform with the requirements of the MT-Convention.

(v) Basic qualifications are listed for personnel involved in all sorts of activities undertaken by an MTO.

(vi) If a foreigner applies to be a MTO in the country, he must be in possession of all qualifications that fulfil the requirements of foreign investment policies of the country, in addition to meeting the requirements imposed on nationals for being MTOs.

(vii) It should also be laid down that the aspiring MTOs should be in compliance with national laws or national policies with regard to insurance, inland transport, coastal shipping, consultations between shippers' organisations and shipping lines or shipping conferences, exchange and customs regulations, tariff regulations, and so on. (UNCTAD Secretariat, 1979, 29-30).

As policy measures for the sake of protecting shippers' interests, these regulations should be made to ensure that all those engaged in the MT business are qualified MTOs who should be able to satisfy different clients' needs as well as to undertake any liabilities that might arise under various circumstances. By licensing control, these regulations would also ensure that MTOs do not become monopolistic and that shippers always have a free choice between multimodal transport and conventional segmented transport so that carriers at every stage continue to be subject to competition.

Being effective measures for the administration of the MT industry of the country, these regulations would at the same time also be beneficial to MTOs themselves. For instance, if a MTO enjoys a status of a licensed MTO, he will be considered as a recognised or authorised service provider who can cater for the needs of all kinds of clients. Holding an approved or filed MT document, a licensed MTO will be in a better position to command the confidence of banks and financial institutions abroad for the purpose of recognition and acceptance of the MT documents issued by him. In the case of foreign MTOs, the licensing control would ensure that his activities within the country are in conformity with national policies and are not in any way detrimental to national interests. On the other hand, under such a system, foreign operators would be placed on the same footing as nationals while engaging in MT operations in the country.

### **3.3 MTOs' Relationship with Various Parties Concerned in the MT Process**

#### **3.3.1 Relationship with Actual Operators**

##### **(A) With carriers**

Either as a VO-MTO or a NVO-MTO, he needs to sub-contract with one or more other transport operators in order to fulfil the whole MT Chain. These other transport operators might be a shipowner, a road haulier, a railway operator, an airline, or an inland waterway operator. These operators themselves may become a

MTO where they sub-contract with at least one of the others for their MT operations. MTOs without any means of transport need to cope with all these transport providers.

Having made this clear, it becomes more obvious that a MTO is far more than a mere transport service provider. He must be an operator well versed in logistics or supply chain management. By being an experienced organiser in making optimal combinations of different modes of transport to conduct MT operations, based on the different economics of transit time and costs of each mode, he will be able to satisfy his clients' needs by offering them the optimised door-to-door services with higher quality but lower costs and shorter time.

#### (B) With non-carriers

Unless serving as an operator of container terminals, or container freight stations or inland container depots, a MTO should have to establish relationships with all parties involved in various activities in the whole logistics chain of MT operations. Even though some mega MTOs operate large and well-equipped intermodal terminals, either through direct ownership or under lease, they do not need to be engaged in handling and all other related activities themselves. There are specialised companies dealing with all these activities. More often than not, it might be more economical for those MTOs to out-source to specialised sub-contractors all those activities such as terminal handling, CFS consolidation or groupage, warehousing, distribution, container leasing, container repair, maintenance and so on.

### 3.3.2 Relationship with Customers ( Shipper / Consignee )

The support from shippers or consignees is of vital importance to the success of a MTO's business. As a very first step, even before starting his MT business, a MTO needs to sort out certain types of shippers and consignees based on market research information, and then target those key shippers and consignees, whose constant support is sought after. Mainly based on these targeted customers, it will be

possible to calculate projections of profitability of his business. Therefore, a reliable customer support is of utmost importance to a MTO.

After the most promising trade areas have been identified, the focus should then be directed on these areas where key shippers might be further identified. Key shippers are those who control sizeable tonnages suitable for multimodal container transport. They may be national, foreign or multinational. Some of them, controlling large quantities of cargoes, may be well known for their household brand names, while some others may be less well known, and there may be difficulties in identifying them. MTOs should try every possible means via relevant organisations to obtain their names and addresses. Once these key shippers have been identified, the next step is to obtain from them a commitment of support for the designed MT operations. At this stage, it is the major task of the marketing team of a MTO to win contracts with as many shippers as possible, usually on a long term basis, by employing all kinds of marketing and sales techniques available. Once such a long term relationship with key shippers has been established, it is even more crucial for the MTO to maintain the relationship by constantly updating to the customers' needs. Keeping customers satisfied also means taking actions on a day-to-day basis when customers meet with difficulties.

The relationship between MTOs and shippers is preferably a kind of partnership. Co-operation between MTOs and shippers as equal partners in transport projects will benefit both sides. Ultimately, the country's exports will be promoted by reliable transport activities at competitive costs. This in turn will enhance the attractiveness of the product to foreign importers who may then increase their future purchases. Larger purchases will then mean better economies for exporters and MTOs leading to even more competitive strengths for their future business. This well-functioning cycle is the result of successful co-operation between shippers and MTOs by exploiting the inherent advantages of multimodal transport.

### 3.3.3 Relationship with Insurers

Since a MTO should assume all liabilities on his own arising from any part of the multimodal chain, he needs to make his own insurance coverage arrangements with liability insurers such as P & I Clubs or Through Transport Club.

One of the major merits of multimodal transport is its single liability regime. Regardless of the actual carrier or performing operator, who actually causes the loss of or damage to the cargo, the shipper or consignee will only make claims against the MTO who is supposed to undertake all liabilities to his customers in the first instance, and afterwards recoup from his sub-contractors, if compensations are applicable. The issues concerning MTO's liabilities have been dealt with in Chapter II.

### 3.3.4 Relationship with Administration and Trade Facilitators

Since MT operation is to a large extent an organisational process, all the procedures or formalities involved can have significant impacts on the result of MT performance. In this regard, as suggested earlier, a MTO needs to have personnel who are very familiar with the Government policies and regulations governing MT activities as well as administration procedures in the field of MT operations.

The appropriate competent authorities involved may include foreign trade (import/export) control authorities, foreign exchange control agencies, competent transport authorities regarding the licensing of MT operations, port authorities, commodity inspection agencies, public health and quarantine control departments, immigration authorities, and so on.

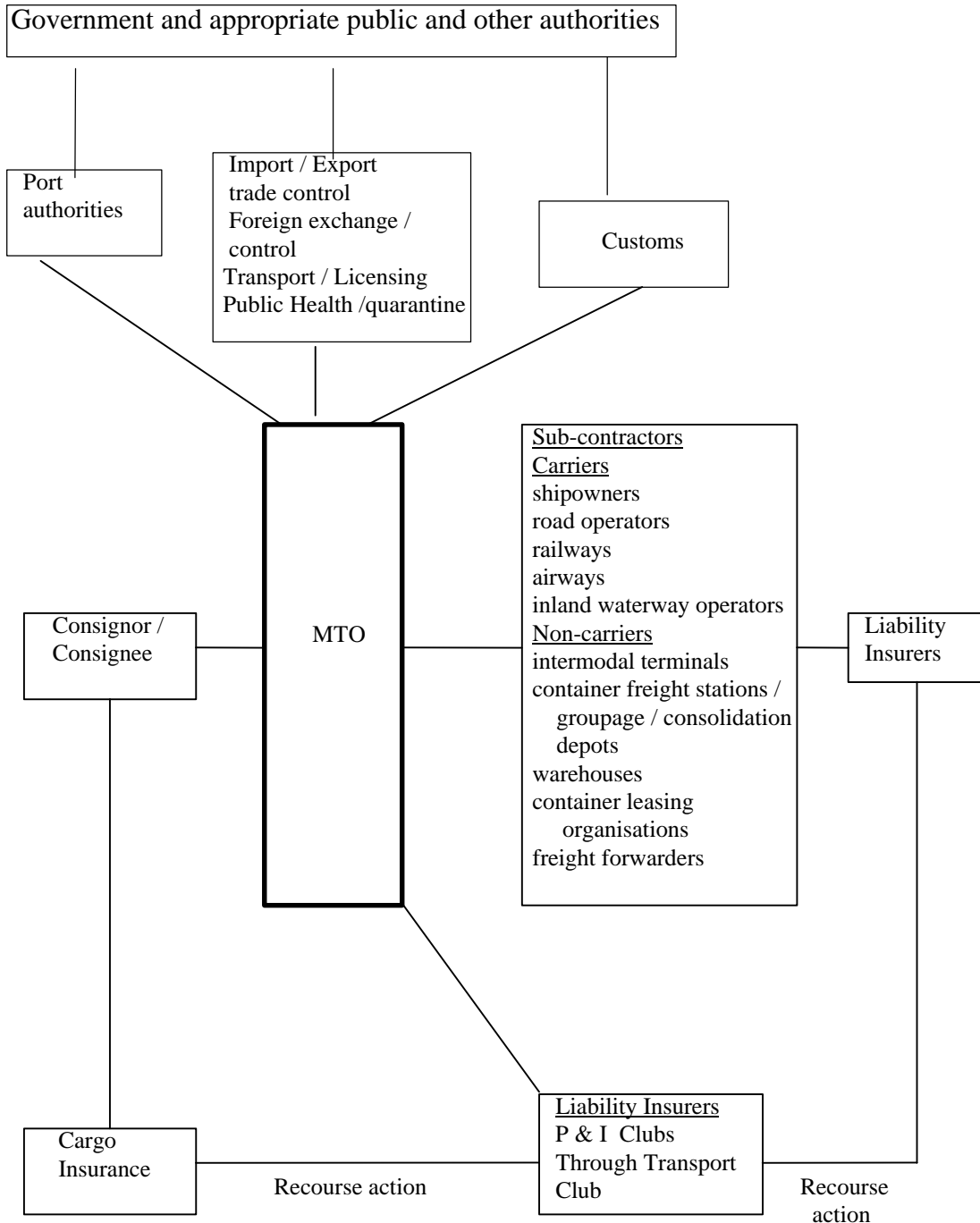
The most important among these authorities might be the Customs authorities, who usually play a pivotal role in trade facilitation procedures. That is why in many countries major MTOs have concluded so called MOUs (Memorandum of Understanding) between themselves and Customs authorities, under which MTOs will be able to enjoy many exemptions with regard to Customs procedures as long as they commit themselves to undertake certain liabilities in



accordance with requirements as given by the Customs authorities. After this MOU approach was adopted in practice, the multimodal transport operations have been greatly facilitated in many countries.

The relationship between MTOs and various parties are reflected in a concise sketch in Figure 2.

Figure 2. MTO's Relationship with the Various Parties



( Source: UNCTAD Secretariat, 1979, Annex V. )

## **CHAPTER IV**

### **China's Container Traffic and Multimodal Transport**

#### 4.1 Shipping Industry as a Primary Sector of China's Economy and Trade

##### 4.1.1 Unique Conditions for Shipping Development in China

The transportation industry constitutes an indispensable part in the development of any nation's economy and trade. Shipping activities always play a pivotal role in the comprehensive transport system. This is especially true for the Chinese situation, mainly because of its geographical advantages of having an enormous resource for water transport.

First of all, China is a coastal state. Its coastline of the mainland is over 18,000 km, while the coastline of its various islands stretches as long as 14,000 km. A great number of excellent sea ports have been developed along this vast coastline, which has certainly boosted the maritime transport of the country. From the economic development point of view, the coastal area of China is the most developed area of the country, the population and area of which are respectively 40% and 14.3% of the country's total. The GDP of the coastal area exceeds 50% of the whole national GDP, and the foreign trade value reaches as much as 70% of the country's total. This has been the catalyst for the vast growth of China's seaborne cargo transport. On the other hand, the highly developed maritime transport has helped to strengthen the national economic and trade development by enhancing the competitive edges of Chinese products in the world market.

Secondly, China also boasts several inland waterways, which are ideally suited for navigation. Number one is the Yangtze River, the navigable distance of which is 2,813 km from the inner Western part of the country to the Eastern coast, where it meets the sea. Then follow the Pearl River in Southern China, the Heilong Jiang River in North-eastern China and the Grand Canal, flowing from the North to the South. This wide spread inland waterway network is still a very important part in

the whole country's comprehensive transport system, especially in the transport of large amounts of bulky cargoes, such as crude oil, coal, iron ore and so on. Nowadays, more and more considerations have been given to tapping these huge inland water resources for developing container transport to a larger extent.

#### 4.1.2 Major achievements in Shipping Sectors

Reflecting the vast development of port activities as well as the fast growth of waterborne cargo transport, some of the recent major achievements might be seen from a brief look as follows.

##### (A) Development of Chinese Port Activities

In terms of sea port development, there are now over 2,000 sea ports in China, each with a minimum annual throughput of 10,000 tons. More than 130 ports among the total are open to foreign trade vessels, which currently accommodate over 36,000 vessels from more than 100 countries or regions in the world each year.

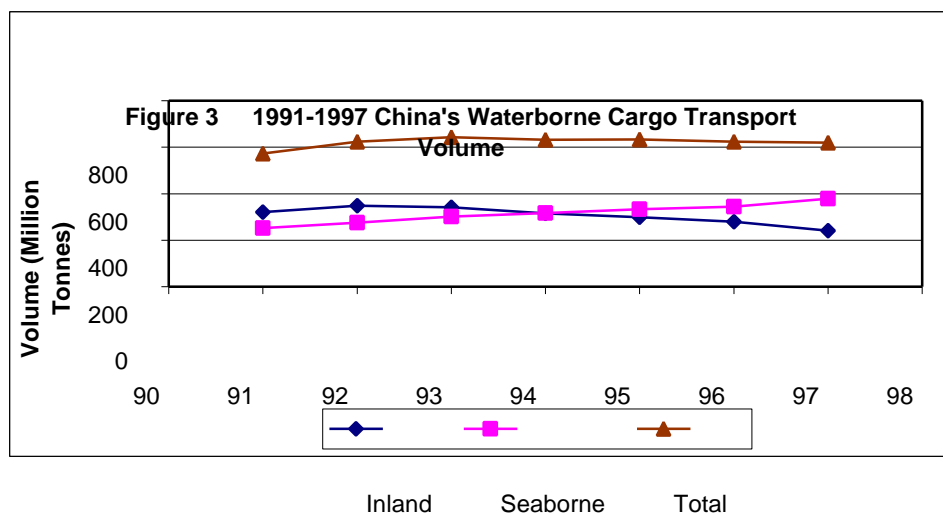
Regarding the inland waterway, the total distance of navigable inland waterway in China amounts to 110,000 km, among which channels of above 1,000 tons reach 5,800 km. There are about 520 berths in major inland water ports.

In 1997 alone, the total throughput of China's major ports ( both coastal and inland water) amounted to about 1.3 billion tons, among which the foreign trade throughput was 380 million tons. The capacity of Chinese ports has been considerably increased, which has greatly alleviated the congested situation, which used to exist in most Chinese ports.

##### (B) The Growth of China's Fleet and Waterborne Cargo Volume

According to statistics, at the end of 1997, China had a commercial fleet of all ship types amounting to 360,000 vessels with a total tonnage of more than 50 million DWT. If taking into account only vessels of 1,000 grt. and above, Chinese owners

owned a fleet of 2006 vessels with a total tonnage of more than 38 million DWT, which makes up 5.41% of the world total (UNCTAD, 1998, 30). The tonnage of the foreign trade fleet is more than 23.6 million DWT, which is operated by over 310 companies. There are more than 1,300 companies merely engaged in domestic coastal shipping, and more than 5,100 companies solely engaged in inland water transport. Such diversified fleets are ready to satisfy the various kinds of transport needs of the country. The cargo volume carried by waterborne transport for the past several years is shown in the following graph (Figure 3), in which a declining tendency for inland water transport and a growing tendency for seaborne cargo transport are reflected.



( Source: Based on Appendix 1. )

### (C) Tremendous Growth in Container Traffic

The international seaborne container transport in China started quite late compared to developed shipping nations. However, thanks to the enormous growth of the Chinese economy in recent years, the container traffic growth rate has been around 30% for the past decade, which is far above the world average growth rate of 6-8% for the same period.

In 1998, the total container throughput exceeded 13 million TEU, a 21.8% increase over the previous year. Among the major coastal container ports, four ports

have reached an annual container throughput exceeding one million TEUs. Their throughputs in 1998 are respectively as follows: Shanghai Port, over 3 million TEUs; Shenzhen Port, nearly 2 million TEUs; Qingdao Port, 1.2 million TEUs; and Tianjin Port, 1 million TEUs. The Shanghai Port as the biggest port in China is expected to have the most promising future as regards container traffic, since it is well located in one of the most dynamic economic regions of the country. According to estimation, the container throughput of Shanghai Port will reach 3.8 million TEUs by the end of 1999. In the past three years' time alone, the container throughput of Shanghai Port has been doubled, showing a great potential of this number one port of the country with regard to container traffic.

A streamlined transport network consisting of main and feeder routes has been in formation for the carriage of international seaborne containers. Currently, there are more than 2,300 sailings on 130 routes of international container liner vessels departing from Chinese ports every month. There are 220 sailings per month serving deep-sea main routes, the direct destinations of which include Europe, the east and west coasts of the US, South America, Australia, South Africa, the Mediterranean, and the Persian Gulf. There are also 1,511 sailings per month serving short sea liner routes, the direct destinations of which include Hong Kong, Japan, South Korea, Southeast Asia, Singapore and so on, and 855 sailings per month from ports in the Pearl River Delta to Hong Kong. There are also 430 sailings per month for the domestic feeder services.

There has also been a dramatic increase of the container fleet in China. There are about 150 shipping companies all over the country engaged in international container transport, with a total number of 1,080 vessels and a capacity of more than 300,000 TEUs. The leading company, COSCO, possesses 147 container vessels with a capacity of 220,000 TEUs, which enables the company to stand in the 7th place on the top-10 list of the world container lines.

The significant upgrading of container terminal facilities in recent years has catered to the needs of the fast growing container sea transport. In the meantime,

most container terminals are well adapted for connections with road, rail and inland waterways. Therefore, a primary foundation has been laid for the development of international multimodal transport of containers.

The surprisingly rapidly increasing container traffic in China during just a couple of years in the past has really startled the world. This has also been one of the most decisive factors accounting for the urgent need for multimodal transport to be developed in China to a greater extent. It has been repeatedly proved in practice that 'if you want to use the advantages of containers to the fullest extent, you should never concentrate too much only on the maritime aspect while neglecting the inland aspects (C S Publications Conferences, 1982, 3)'. It can be said that one of the innate characteristics of container transport is its adaptability to the multimodal system. Therefore, the inception of the container revolution in the transport industry inevitably heralded the advent of the multimodal transport era. The more containerised trade is taking place, the more benefits from the multimodal system will be brought about. The fast growing container traffic is not only imposing a great need for multimodal transport to be widely employed in China, it will also ensure a sufficient amount of containerised cargo flow to keep multimodal transport a viable business in China.

## 4.2 Multimodal Container Transport System in China

### 4.2.1 The Multimodal Chain of Container Transport in the Present System

As mentioned above, the foreign trade transport of container cargoes has been growing tremendously in recent years. However, the procedures regarding the import or export of container commodities have remained nearly unchanged from the very beginning. If looking into the process of exported container commodities, the major procedures might be summarised as follows.

#### (a) Obtaining Export Licenses

Companies involved in international trade must first obtain export licenses from the Ministry of Foreign Trade and Economic Co-operation (MOFTEC). After that, Chinese shippers must apply to the People's Bank of China to open foreign currency accounts.

(b) Arranging for Payment

When foreign buyers agree to import goods from China, usually from foreign trade corporations licensed by MOFTEC, they enter into contracts for trade. They instruct their banks to issue letters of credit to the Chinese sellers' banks. These banks then inform the sellers that credit is available. Once the sellers satisfy the terms and conditions in the letters of credit, preparations begin to ship the goods.

(c) Selecting Freight Forwarders

The sellers must then hire freight forwarders (licensed by MOFTEC) to handle the transport arrangements and provide them with whatever information is needed. The forwarders contact shipping agents, licensed by the Ministry of Communications (MOC), to book space in ocean-going vessels, and then arrange for the cargo to be picked up. In this process, freight forwarders arrange for haulage from the sellers' premises to container freight stations.

(d) Carrying Goods Inland

Goods are carried by trucking firms, licensed by provincial communications departments, railway operators, or sometimes by inland waterway operators in breakbulk to container freight stations near the ports. At the same time, containers are provided at the freight stations by the freight forwarders, who secure them from shipping lines or container leasing companies.



(e) Consolidating and Packing Containers

At the freight stations, containers are packed with the goods to be exported. If these are small-sized (LCL - less-than-container-load) cargoes, they are consolidated with other LCL cargoes to make a container-load and then packed into a container.

(f) Inspecting Cargo at Borders

Freight forwarders then arrange for the necessary inspections - whether of commodities, plants and animals, health or Customs - with local offices of the Commodity Inspection Bureau, the Ministry of Agriculture (MOA), the Ministry of Health (MOH) and Customs General Administration (CGA), at the container freight stations or other designated places. Customs then seal them.

(g) Hauling Cargo to Container Terminals

When container terminal operators (licensed by MOC) in the ports are ready to receive the containers for loading onto vessels, freight forwarders arrange for haulage by truck from the freight stations to the container terminals.

(h) Processing Containers at Terminals

At the terminal gate, containers are checked with regard to their physical condition and passed on to the terminal operator, along with an EIR that records those findings. The terminal operator then co-ordinates with the shipping line to load containers onto the vessel. While waiting for the vessel to arrive, containers are stacked in the adjacent yard. They are then loaded into vessels, counted and certified by the China Ocean Shipping Tally Company.

(i) Shipping to Foreign Ports

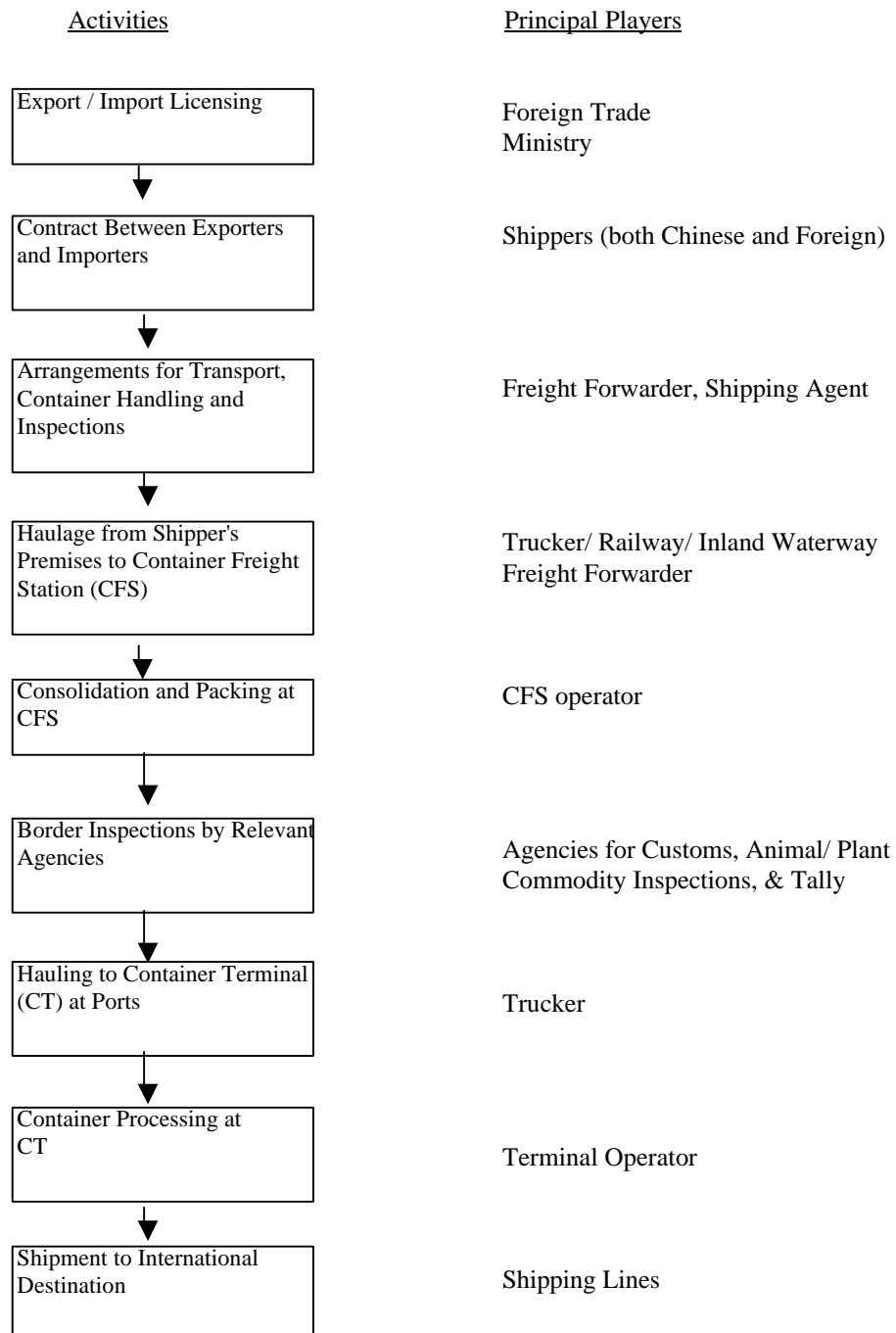
Once a container is loaded and the vessel embarks for foreign destinations, the shipping agent issues a bill of lading to the freight forwarder, on behalf of the shipping line, which certifies that a particular cargo has left the port. The freight

forwarder, in turn, passes the bill of lading on to the Chinese seller, who takes it to a bank and receives payment, even before the goods arrive at the ultimate destination.

The above procedures can be illustrated in the following chart (Figure 4).

Figure 4. Process of Container Transport Chains in China

Activities and Players in Containerised Cargo Movement



( Source: World Bank, Report No. 15303-CHA, October, 1996, p9. )

#### 4.2.2 Major Players in the Multimodal Chain

##### (A) Participants in Multimodal Industries

There are mainly four types of participants who are involved in the international multimodal transport of containers in today's situation of China. They are, respectively, transport operators, intermediary service providers, container terminal and freight station operators, and shippers as multimodal transport users.

##### (a) Transport Operators

They are playing an essential part in the multimodal chain. The first coming on the scene are *ocean-going shipping lines*. At present, the industry is dominated by Chinese national shipping lines, including COSCO which takes up a share of about 50%, Sinotrans with a share of 20%, and the provincial lines in Guangzhou, Shanghai and Tianjin with a share between 15 to 20%. All these lines are state-owned enterprises ( known as SOEs ). There has been some private involvement in shipping activities, but it still takes up a very insignificant share at present. The foreign investments in the shipping business in China have been realised via establishing joint venture shipping companies with Chinese partners and wholly foreign owned subsidiaries in China. By 1997, there were 125 joint venture shipping companies, and 16 wholly foreign owned shipping subsidiaries with 23 branch offices all over the country.

So far as *railway companies* are concerned, the Ministry of Railways (MOR) is the sole operator. Rail operations are highly regulated by central government. The MOR provides rail services through its 12 regional administrations, while its headquarters plan, manage and operate the national rail system. Its major affiliated SOEs include CR Foreign Service Company, which is engaged in freight forwarding activities, and China Railway Container Transport Centre, and Sinorail Intermodal Transport Company, both of which provide rail-based container transport services.

There are neither private involvement nor joint venture operations in China's rail activities at present.

With regard to *trucking companies*, large freight forwarders and provincial trucking SOEs are major operators. Sinotrans is the largest trucking operator, with a 1,400 tractor trailer fleet, which is one third of the country's total. In the field of trucking activities, Sino-foreign joint venture companies have been growing fast. By 1997, more than 510 joint venture trucking companies had been set up in China. A diversified ownership of trucking business is taking shape, which will bring about more competition in the field.

In terms of *inland water shipping companies*, there are seven to eight inland shipping container operators along the country's biggest river, the Yangtze River. Changjiang Shipping (Group) Company is the largest one. Many more operate between the Hong Kong and Guangzhou areas along the Pearl River, some of which are privately-owned companies. There are also over 60 Sino-foreign joint venture inland water shipping companies.

#### (b) Intermediary Service Providers

*Freight Forwarders.* Freight forwarders arrange transport services and border inspections for shippers. There are now about 1,600 freight forwarders all over the country, which are licensed by MOFTEC. Most of them are affiliated with Sinotrans or COSCO, and some are provincial or municipal SOEs. The Sinotrans group has a market share of 60% and COSCO has 20%. As regards foreign investment in forwarding activities, there are about 446 forwarders with foreign ownership involvement currently operating in China, a limited number of which are wholly foreign owned entities.

*Shipping Agents.* Shipping agents represent the shipping lines. They sell space on vessels, contract with shippers, quote tariffs and issue bills of lading. By 1997, about 175 ocean shipping agents were licensed by MOC. Penavico, a subsidiary of COSCO, has a 75% market share, while SinoAgent, a subsidiary of Sinotrans, has a

little over 20%. Up to the present time, foreign investment is still not permitted to be involved in shipping agency business in China, since it is considered as a restricted area according to the Government's foreign investment policy.

*Ocean Shipping Tally Companies.* Tally operators verify quantities of containers taken on or off vessels. They also document the hand-over from shipping lines to terminal operators. There are now about 65 ocean shipping tally companies operating in major port cities, among which China Ocean Shipping Tally Company is the dominant one. Foreign investment is also not permitted in the ocean shipping tally business in China at present.

#### (c) Container Freight Station and Terminal Operators

*Container Freight Stations (CFS).* It is normally at container freight stations where small cargoes are consolidated into container loads, and containers are stuffed or stripped. Often, border inspections take place here. Many operators are affiliated with major freight forwarders or provincial and municipal SOEs. There are currently a number of foreign funded joint venture CFSs in the peripheries of major ports.

*Container Terminals (CT).* Container terminal operators process containers from terminal gates to ships, or vice versa. They use heavy equipment such as transtainers, tractor trailers, straddle carriers, reach stackers and container cranes. Most CT operators in China are affiliated with port authorities. Each major port has one or two operators. There are some 10 joint venture container terminal operators at present, among which those in the Shanghai and Yantian ports are the biggest.

#### (d) Shippers in MT Chains

As the end users of multimodal container transport services, shippers are of various types in China. One of the major types is the foreign trade corporations. They are enterprises engaged in foreign trade import and export businesses and licensed by MOFTEC. Of about 3,000 foreign trade corporations of this kind, most are SOEs at the central and local levels.

## (B) Roles of Government Agencies in the MT Chain

In today's administration system of China, the Government dominates almost every aspect of multimodal transport operations. The Government acts as regulator, not only regarding matters such as traffic safety, border controls and so on, but also concerning issues of economic regulations, such as market entry and pricing. Furthermore, some government bodies are still heavily involved as operators in some transport sectors. The typical example of this is the present rail transport system, where the separation of administration and operation has not yet been made.

Comparatively speaking, in the area of shipping business, especially in the ocean shipping sector, the government's involvement in operation has almost been avoided. The ocean shipping companies are getting more and more adapted to the requirements of international practices in doing business. They have to strive for survival in international competition. SOEs in other sectors, such as trucking operators, foreign trade enterprises and so on, are also in the process of transition. They are trying to adapt themselves to the new mechanism of market oriented economy from the old planned economy system.

In order to clearly identify the government functions in multimodal operations, it is recommendable to classify such functions in more detail.

Under the present administration system of the Chinese Government, four types of Government agencies might be classified as having different functions in administering multimodal transport in China.

### (a) Agencies that co-ordinate the nation-wide policies and investments.

These include SETC - the State Economic and Trade Commission, and SDPC - the State Development and Planning Commission.

As a co-ordinating agency, SETC is one echelon above the industrial ministries and provincial governments. It is responsible for the nation-wide economic

policy implementation, especially for the short and medium term. A secretariat for the National Container Co-operation Task Force has also been established within the Commission, which acts as an ad-hoc committee for promoting co-operation among different agencies involved in multimodal container transport.

SDPC is also a co-ordinating agency and one echelon above the industrial ministries and provincial governments. It is responsible for long-term investment planning and extensively involved in developing infrastructures for all different modes of transport. It also regulates prices of major public utilities, including the transport sectors.

(b) Industrial ministries that regulate industry activities.

Under this category are mainly MOC - the Ministry of Communications, MOR - the Ministry of Railways, and MOFTEC - the Ministry of Foreign Trade and Economic Co-operation.

As one of the major competent authorities in charge of transport sectors, the MOC regulates all modes of transport except railways and civil aviation, viz. ocean-going shipping, inland waterway, coastal shipping and trucking activities. It also regulates several intermodal services, such as shipping agencies, terminal operations, container freight stations, container yards, and ocean shipping tallying. The MOC's major responsibilities also include the construction of road and port infrastructures, developing the nation-wide highway network as well as the coastal and inland waterway ports.

Since the present rail transport system is still highly centralised, as a regulator as well as an operator, the MOR plans, manages and operates the national rail system through its 12 regional administrations all over the country.

As a competent authority in charge of foreign trade affairs, the MOFTEC is responsible for administering external trade, including export/import licenses and licenses for foreign trade corporations. It also regulates international freight forwarding activities. It used to have some affiliated SOEs, such as 12 major foreign



trade corporations, and Sinotrans, acting as an ocean going carrier, mainly through chartered vessels, and one of its subsidiaries, known as SinoAgent, is also one of the major freight forwarders.

However, after the latest development of organisational reform at the central government level, all those major SOEs have been detached from the various industrial ministries they used to belong to, with a view to letting them survive on their own under constantly changing market conditions. For the time being, many of those major SOEs of the country are just nominally affiliated to SETC, since they have started to enjoy real autonomy in their operations and other commercial activities.

(c) Agencies that carry out border inspections in the process of international multimodal transport.

These agencies are mainly CGA - the Customs General Administration, MOA - the Ministry of Agriculture, MOH - the Ministry of Health and CIB - the China Import and Export Commodity Inspection Bureau.

Major responsibilities of the CGA include: to evaluate and collect import duties and compile foreign trade statistics, enforce standards on the physical condition and safety of containers, and promote Customs brokerage services.

Until 1998, the MOA was in charge of the inspections of animals and plants, the MOH in charge of the inspections for health quarantine, and the CIB in charge of the inspections of export and import commodities. In 1998, these three functions were merged into a new single agency, which is responsible for the inspections and quarantines of import / export cargoes. This has been a very big step in simplifying the procedures and formalities of import / export cargoes. For sure this will have a very significant impact on the trade facilitation process for international multimodal transport of containers.

(d) The Public Security Bureau (PSB) under the Ministry of Public Security.

It performs two major functions as regards international multimodal transport. The first is to exercise the immigration controls at the international ports. The second is to regulate the use of vehicles, including vehicle registration and licenses for drivers of tractor / trailers and trucks of all kinds.

## **CHAPTER V**

### **Existing Problems and Recommended Solutions for Multimodal Transport in China**

#### 5.1 Significance of Multimodal Transport to Economic Development in China

According to the Ninth Five-Year Plan and Prospects Target Program for the Year 2010 for National Economy and Social Development of the People's Republic of China, which was formulated in 1995, in the next 15 years the economic development policies of China will focus chiefly on promoting the transformation of economic systems from traditional planned economy towards socialist market economy, and the transformation of economic growth modes from the extensive mode towards the intensive one.

In order to achieve these two fundamental transformations, the Government needs to adopt the following policies and measures.

Firstly, to establish a modern enterprise system and vitalise state-owned enterprises; to actively foster an integrated, open, competitive and orderly market system; to shift the government's function so as to enforce the macro-regulation and macro-control of the state by mainly using economic, legal and necessary administrative measures; and to continue to embrace the opening policy and boost the development and vitalisation of the economy.

Secondly, to promote the restructuring of the industrial structure, strengthening infrastructure and basic industry, vitalising pillar industries and developing the tertiary industry; to guide the regional economy to develop in a co-ordinated fashion and promote rational distribution of the national economy, paying more attention to the development of the central and western parts of the country while encouraging the eastern parts to continue bringing their advantages into full play, and endeavour to lessen the disparity between different regions.

In accordance with these bedrock guidelines for the country's economic development, it is clearly stipulated that tertiary industry be strengthened and regional disparities be lessened. Multimodal transport will certainly have a significant role to play in this regard.

The transport industry as a whole falls into the scope of tertiary industry. Multimodal transport is, as a matter of fact, a comprehensive approach in utilising the advantages of different modes of transport. As has been discussed in the previous chapters, multimodal transport will bring about various benefits, both for the national economic development as a whole and for individual operators and participants involved in the multimodal transport. For instance, multimodal transport will make national products more competitive and thus improve the country's exports and will reduce foreign exchange expenditure and help the balance of payment of the country. It may also help in introducing new technology to the transport industry, promote new activities for the transport sector and will stimulate trade on the whole. As for individual operators or participants involved in the MT chain, multimodal transport will reduce transport costs as well as transit time. Therefore, it will enhance the competitiveness and the financial status of multimodal transport operators and will also create new trading opportunities for shippers because of improved transport services. All these benefits, being just a few examples, will in themselves adequately justify the very significant role multimodal transport might play to the development of the national economy. It is definitely one of the most important sectors in the field of tertiary industry.

Speaking about the lessening of regional disparities, in today's Chinese context, it mainly refers to the disparity between the fast growing eastern coastal areas and the backward western inland areas. These western areas make up a considerable part of the vast territory of the country. Therefore, it is a quite urgent task to promote the economic development of these areas. One of the bottlenecks affecting the development in these areas is the under-developed transport industry. By introducing multimodal transport on a larger scale to these regions, a series of

changes might be expected. First of all, transport infrastructures and facilities in these regions will need to be greatly upgraded and new infrastructure added. The quality of transport services will be largely improved while transport costs are considerably reduced. As a result, the import and export activities of these regions will be greatly boosted. Generally speaking, the economic activities of these remote western regions have been closed for many years owing to the lack of an efficient and effective transport link with other regions. This situation will be definitely changed by the introduction of multimodal transport into these regions.

## 5.2 Existing Problems and Bottlenecks

### 5.2.1 Multi-department and Multi-level Administrative System for Multimodal Transport

As briefly discussed in Chapter IV, there are several major government agencies involved in the administration of multimodal transport in China. Not only the transport administration departments, but also departments in charge of national economy and trade, foreign trade, customs, border posts and inspections are all responsible for the administration of multimodal transport. Even within the transport sector, the administration of five major modes of transport falls into the responsibilities of three different competent authorities, i.e. the Ministry of Communications, the Ministry of Railways and the General Administration of Civil Aviation. In addition, all these administration bodies will find their corresponding subordinates at both the provincial and municipal levels, who will also exercise their respective authority over the administration of multimodal transport in their regions. This multi-department and multi-level administrative system has resulted in some serious problems hampering the smooth development of multimodal transport in China.

(A) Lack of co-ordination and consistency among administrative bodies

The present multi-department administrative system has created the situation that every department is actually responsible for only one part of the multimodal transport, which is still the previous model for segmented transport. As a result, an excess of administrative bodies and overlapping responsibilities among these bodies is inevitably created. There is hardly any co-ordination or co-operation between the different departments in exercising administration over the country's multimodal transport. Rules are promulgated in an uncoordinated fashion. For instance, several agencies, i.e. the Commodity Inspection Bureau, State Ship Inspection Bureau and Harbour Superintendent, are involved in the inspection of containers for safety and structural integrity. Another example of the lack of co-ordination involves rail-port connections. Major ports are equipped with rail sidings, but they are under-utilised for container transport because authorities have not worked out the scheduling arrangements.

Therefore, this multi-department administrative system will certainly impede the smooth development of multimodal transport.

(B) Regional and departmental protectionism

The multi-department and multi-level administrative system also leads to serious protectionism in different departments, sectors and regions. Policies and regulations adopted and macro-control exercised by different administrative bodies are mostly in favour of the interests of their respective sectors or regions.

So far as multimodal transport is concerned, concerted and unified policies and regulations are required in co-ordinating different sectors and different regions involved in the MT chain. For instance, plans of infrastructure construction for multimodal transport should be made at a trans-regional level (or even at national level) rather than being limited to a particular region. However, because of protectionism, the present situation in China is that two adjacent provinces may both want to be in a hub position in the MT chain. As a result, they both start to invest

heavily in a series of projects of MT infrastructure and other facilities, which afterwards turn out to be repetitions of the same projects. Even within the same city, due to the separating administrative system in sectors, constructions of ports are not planned in a unified manner. As a result, excessive ports or terminals within the city are constructed, with investment dispersed and resources wasted, failing to achieve operations where economy of scale benefits could be realised.

Many operators in the field of multimodal transport, particularly state-owned enterprises (SOEs), have got used to protection over the years while being engaged in multimodal transport activities. This situation will lead to unfair competition in the multimodal transport market. Protectionism, in whatever forms it might take, will certainly be detrimental to the development of effective trans-regional and trans-sectoral multimodal transport.

#### (C) Undivided role of the government as the regulator and the operator

The government has been involved in the operational activities of enterprises, directly or indirectly, for many years. The mixed role of government and enterprises typically exists in the railway sector, while it also exists in other sectors to various extents. There is excessive administrative interference existing in the multimodal transport market, the direct effect of which is that enterprises do not have the actual-sense decision-making ability, and are thus losing the competitiveness of adapting themselves to the changing market.

The twofold role of the government as the regulator and the operator can be typically reflected in the case of the country's port sector. Administration of port affairs and operations of terminals are mixed up. Therefore, being the government, the port can hardly exercise the governmental function on a fair basis; being an enterprise, it lacks the vitality for market competition.

This outmoded institutional/regulatory framework has been one of the major barriers for establishing an efficient and market-oriented multimodal transport system in the country.

### 5.2.2 Inadequate Co-ordinating Policies and Regulations for the MT Market

#### (A) Ununified policies and regulations

As mentioned earlier, there are many government agencies involved in the administration of multimodal transport. The existing policies and regulations, though quite a few in numbers, were all made from the viewpoints of particular departments, because of the lack of a unified administrative body independently overlooking multimodal transport. As briefly introduced in Chapter II, the Regulations Governing International Multimodal Transport of Goods by Containers, jointly promulgated by the MOC and MOR in March 1997, was actually the only comprehensive regulation governing the multimodal container transport so far. However, these Regulations are only a general framework, which is far from having a full coverage of multimodal transport as a whole.

The government's vertically segmented structure has resulted in the fact that rules and regulations related to container transport, supervision and management laid down by different administrative bodies are either duplicated or inconsistent with each other owing to the limitations of their respective interests. Policies and regulations formulated by the administrative department of a certain sector tend to start from the very department's interest instead of from the overall considerations for multimodal transport. Therefore, they could only be enforced within the system of this same department, and it is hardly possible to have a trans-department or trans-sector implementation thereof.

The variety of regulations and the lack of unified multimodal transport policy are certainly unfavourable for the development of multimodal transport, particularly for the maturing of its market.



#### (B) Lack of encouraging policies for MT development

Although the multimodal transport of containers started in China some years ago, there are still insufficient incentives with regard to government policy measures in boosting multimodal transport to a greater extent. Still at the primary stage of development, multimodal transport in the country needs encouraging and supporting policies from the state in various areas, such as pricing, taxation and subsidies, development and research, information distribution, marketing promotion and so on. In particular, certain types of multimodal transport, which might contribute in saving resources, reducing costs and alleviating traffic congestion and environmental pollution, should be even more encouraged by government policies.

#### (C) Tariff system not rationalised

The transport tariff system for multimodal transport is not structured in a way that attracts shippers. While some of the break bulk cargo transport is still using the state planned price, the container transport pricing is more market adapted by taking the policy of 'new line, new price' and 'high quality, high price'. Consequently, the container transport tariffs are sometimes obviously higher than that of the transport of break bulk cargo. For example, the current railway transport tariff for 20-foot international container is 70% higher than that of a wagon-load of general cargo. As a result, in addition to the fact that price is one of the most sensitive factors to shippers in the hinterland, quite a part of the containerisable cargoes in the hinterland have been transported as general cargo before or after being stuffed or stripped in the coastal ports. Multimodal transport is unfortunately discouraged by this unfavourable tariff system.

Moreover, there is a variety of charging items for container transport where overlapping inspections and charges can be found. With very low transparency, the entire trip tariff for multimodal transport is unstable, making it almost impossible to realise the 'one-charge' system, which is one of the most striking features of multimodal transport.

### 5.2.3 MT Services and Network at a Low Level

#### (A) Low service level

At present, the development of several major modes of transport in China takes the following features. Road transport enjoys a predominant position, and shows a strong increasing momentum. There is great tension in railway transport capacity, and also conspicuous contradiction between the capacity and the demand of railway transport. Thanks to several major rivers, especially the Yangtze River covering a vast area of the country, the basic conditions of inland waterway transport are comparatively good, but their advantages have not been fully utilised yet. Based on this general situation of the country's transport system, the nation-wide multimodal transport should have been developed to a better extent.

Consequently, the present situation of multimodal transport in China is still far from being desirable. The proportion of multimodal transport is still low in container transport in most areas of the country. Most of the cargoes are still stripped or stuffed in ports, and some cargoes are even transported from a long distance away as general cargoes to the coastal ports and stripped and stuffed there for transshipment, which leads to a very low containerisation rate in most inland areas. One of the major reasons for this has been explained in the previous section, which is the unreasonable tariff systems for container transport and general cargo transport. Nevertheless, the most important reason of all might be that currently the service of multimodal transport is still at a very low level in most areas. Consequently, the efficiency and benefits of multimodal transport have not been given full play yet.

Some typical examples might include the low voyage density of inland waterway transport, the problems in the connections between highway, railway and inland waterway, and the poor information system. In particular, the efficiency of operational organisation for the collecting and distributing transport is very low, and MTOs are not able to collect and distribute LCL cargoes for medium and small-size

enterprises. These are mainly limited by the transport organising ability of operators, quality of business staff and some hardware conditions.

Moreover, in the process of multimodal transport services, the lagging supervision and management service of customs and inspections and complicated procedures have negatively affected the concluding of door to door multimodal transport terms between the MTO and the shipper. On the whole, the number of MTOs is still limited at present, resulting in the low flexibility for shippers in their choices.

#### (B) Ununified MT Network

There is a great potential for the development of multimodal transport in China. This fact calls for effective measures to be taken in addressing those urgent matters, one of which is the lack of a unified overall plan for the development of multimodal transport at the national level. Since the integration is the main feature of multimodal transport, the establishment of an integrated multimodal transport network all over the country seems to be an urgent need.

Although each province or municipality has its own transport development plan, most of them are worked out from the viewpoint of local interest. The lack of co-ordination and co-operation among them makes it difficult to form a single complete system of mutual benefit and development. The state also lacks a basis for its decision-making at a macro level. This situation is unfavourable for the development of the economy in general and multimodal transport in particular.

For example, during recent years, various departments have built a number of container terminals. There is serious overlapping in the construction. The construction of a group of small-scale and poorly-equipped terminals has resulted in an excess of terminal locations within one area or even one city. The development scale and level of terminals are thus limited, and an efficient network system for multimodal transport is difficult to be established. This will not be conducive to the reduction of transport cost and the upgrading of the service level.

#### 5.2.4 Low Technology Base and Inadequate Facilities

##### (A) Low technical level of equipment for multimodal transport

Container handling equipment and facilities are at a low technical level, and also in short supply, in the inland areas. This causes low handling efficiency and thus inferior quality of service to shippers in these areas. Many hinterland container terminals can only handle 20-foot containers with simple and inadequate equipment and facilities. For instance, in many inland river container terminals, no container cranes but mainly swing cranes and floating cranes are employed for the handling at the quayside, and there is a shortage of dedicated container spreaders and terminal handling equipment. The scarcity of facilities will limit the supply of empty containers as well. They will have to be supplied by the container yards on the coast, which translates into longer response times.

The transport means for containers are also simple and backward. Very few dedicated railway wagons, trucks and inland river vessels for containers are available.

The railway is inadequately equipped, since the system was not designed for container traffic. Flat cars are in short supply, which means that gondola cars are used continually. Because these are heavier, railway tracks must be maintained more frequently.

Most of the container vessels on the major inland rivers, such as the Yangtze River, are transformed from old vessels and some are general barges, the capacity of which is comparatively small. This translates into a very low transport efficiency and effectiveness.

Due to a shortage of tractor trailers, low-body flat bed trucks are used as substitutes for them, creating problems of safety and efficiency. Domestically manufactured diesel-powered tractor trailers perform poorly, because the technology is old, one generation behind that used in OECD countries. However, imported

tractor trailers are hard to come by, partly because of the high import duties (40% for a heavy-duty truck of 14 to 20 tons).

#### (B) Inadequate infrastructure facilities

In most inland areas, there is still a great shortage of container freight stations and distribution centres that are of certain scales. Construction of railway and highway inland transport corridors for the multimodal transport centres has not been given full consideration in the municipal development plan of cities which are transport hubs. The limited number and small scale of railway and highway terminals for international containers make it difficult to form a hinterland multimodal transport network system for containers.

Dedicated barge berths or railway transport facilities are unavailable in some transshipment ports. For example, despite the rapid growth in the inland river container transport volume for the port of Shanghai, there is no dedicated container berth for inland river barges in the port. Barges have to share berths and land handling facilities with sea-going vessels. The inadequate railway facilities in the container terminals of Shanghai port also bring difficulties for water-rail multimodal transport.

#### (C) Lack of container tracking technology

At present, many shipping companies in China are still reluctant to let their containers move inland, largely because of the lack of reliable information about the location and status of containers. In developed countries, shipping lines and other carriers use container tracking systems to manage their assets and provide clients with necessary information about the whereabouts of their cargo along the entire multimodal supply chain. There are companies specialising in information services that perform this function.

There are hardly any such services currently available in China, because the container tracking technology is still at a low level. This might constitute a major

obstacle for the further development of multimodal transport in China, if the problem fails to be properly addressed at an early stage.

#### 5.2.5 Cumbersome Procedures and Documentation

##### (A) Customs and other border procedures

In most Chinese ports, containers have to spend quite some time waiting at nearby container freight stations to clear complicated border procedures.

With regard to Customs procedures, due to a lack of transparency and the degree to which different ports have adopted the new procedures, shippers are confused about which rules apply where. The release of goods with simplified declarations, pending detailed ones that would arrive later, is limited and used only in exceptional cases. Bonded transit to and from inland clearance stations is also practised infrequently, although it relieves pressure on Customs at gateways. While being required to pre-enter their export/import declarations through computers to the Customs-approved brokers or freight forwarders, shippers still have to submit manually-prepared declaration forms, which turns out to be a duplicated step in the clearance process.

Other border procedures, including commodity inspections, health quarantine, animal/plant inspections and tallies, also delay the processing of containers. All containers (even empty ones) must be inspected, at which time a stamping fee is charged. These agencies partly finance their operations from the fees charged for the inspections, which provides an incentive for frequent and overly thorough examinations. These multiple inspections, together with the Customs procedures, are carried out sequentially, and consume time. Clients must wait at four different offices and pay separate inspection fees. This translates into repeated checking of declaration forms and supporting documents. The commodity inspection and tallying are required as parts of normal border procedures, which is different from practices in

many developed countries where the commodity inspection is not required and tallying is performed on a commercial basis.

#### (B) Documentation and computerisation

It is reported that inefficient trade/shipping documents can cost as much as 8% to 15% of the total value of an international transaction. (World Bank, Report No. 15303-CHA, 1996, 29). This suggests that great savings might be obtained by simplifying the process.

Development of multimodal transport requires an efficient flow of documentation. Although China has adopted many international standards since the mid-1980s, including EDIFACT by which data is exchanged electronically, paper documents are still extensively used for presentation or surrender of cargo. The paper-based procedure, along with the lack of standardisation, has impeded computerisation and delayed development of international trade and multimodal transport. The modern technology of EDI has yet to be implemented to a larger extent.

### 5.3 Solutions Recommended

Necessary modifications to particular laws or regulations, to an organisational structure, to a specific transport operation might improve the overall efficiency of the transport system.

#### 5.3.1 Streamline the Administrative System by Redefining the Government's Role

##### (A) Unifying administrative mechanism for multimodal transport

Since multimodal transport involves various sectors and regulatory agencies, the Government must devise ways to co-ordinate their activities. The multi-department and multi-level administrative system will inevitably create jurisdictional disputes, hampering many cross-departmental issues from being smoothly resolved.

Therefore, a unified administrative body at the central Government level concerning multimodal transport might need to be created.

As the first step, the Government set up the National Container Co-operation Task Force (NCCTF) in 1992, a committee chaired by the State Economic and Trade Commission and consisting of MOC, MOR, MOFTEC and CGA. However, at present the NCCTF mechanism is still too weak to effectively co-ordinate the policies of different regional and single-modal interests.

Therefore, it is recommended that the NCCTF be upgraded to a standing body with a clear mandate to co-ordinate multimodal transport policy. It should also be expanded to cover trade facilitation issues. As a matter of fact, NCCTF could be a good start leading to the creation of the Trade and Transport Facilitation Committee (TTFC) at the national level. Apart from the various competent authorities forming the NCCTF, key decision-makers from the major public and private enterprises should also be included in the Committee. (Castro, 1996, 70). This national TTFC, once being set up, will certainly possess much stronger authority than the existing NCCTF in promoting the development of the country's transport industry, particularly in the sector of multimodal transport.

Under such a unified mechanism, it should be possible to avoid the regional and departmental protectionism. It will also become possible to make a unified overall plan for developing multimodal transport in the country. Overlapping constructions of MT facilities in the vicinity of each other will be stopped. As a result the limited capitals will be used in a rational way to form an optimised and highly efficient multimodal transport network all over the country.

#### (B) Separating regulatory and operational functions of the government

During the transition from a planned to a market-oriented economy, the Government will need to shift its efforts from micro-managing the system to assuming a more indirect role. Its main task should be to establish a competitive market in which enterprises can adjust their activities according to market signals. In



this respect, it will be particularly important for the Government to draw a clear line between regulatory and operational functions. State-owned enterprises, including major MTOs, should be reformed according to the modern enterprise system into operational units, in the true sense of the word, who are independent in management and in self-development, and assume sole responsibility for their profits and losses.

In the port sector, for instance, the mixed functions of the port authority in both port administration and terminal operation should be separated. The port authority should exercise the administrative function on planning, construction, safety and environmental protection of the port on behalf of the government, while handling activities should be undertaken by stevedoring companies as participants in the market competition.

The process to detach the government and its affiliated enterprises has started with a view to stopping the government's role as an operator. As the first step, at the end of last year, a group of major SOEs were formally detached from their previous responsible ministries, including some major MTOs, such as COSCO, Sinotrans, Penavico, etc., which were detached from either the Ministry of Communications or the Ministry of Foreign Trade and Economic Co-operation. This might be an encouraging signal, which will lead to the state-owned and other public MTOs to operate truly independently in the market with the least amount of interference with their operations from the government.

### 5.3.2 Enact or Reformulate the Legal Framework

#### (A) Enactment of a unified Multimodal Transport Act

In order to get rid of the present legal regime of duplicated, inconsistent and arbitrary regulations governing the country's multimodal transport, a Multimodal Transport Act needs to be enacted, taking into consideration both the actual Chinese situation and the international practice. The existing MT regulation, jointly-promulgated by MOC and MOR, the Regulations Governing International

Multimodal Transport of Goods by Containers, could be thoroughly reviewed. Based thereupon, a comprehensive Multimodal Transport Act could be formulated covering all aspects of multimodal transport activities in the country. The MT market is in bad need of such a legal basis in securing a fair market competition and a sustainable development of the MT industry.

(B) Policies encouraging the MT development

The development of multimodal transport needs to be stimulated and encouraged by government policy measures, especially at the initial and immature stage. These policies may involve subsidies, taxation, investment incentives, publicity and so on. Some activities need initial support and stimulation, such as research, training, provision of new services, construction of multimodal transport centres, demo projects and exchange of information. In some other aspects, long-term encouraging measures need to be taken. For example, the development of “dry ports” in the interior should be stimulated, and the special licenses needed for cross-provincial transport toward central ports should be abolished.

(C) Adopting a favourable tariff system

Tariffs are among the most sensitive issues which shippers are most concerned about. In order to solve the problems of too many charging items and low transparency in the present multimodal transport tariff system, it is recommended that a lump-sum system be adopted with the tariff being overtly indicated, and shippers would only be charged once for the entire multimodal trip. The price parities among full load, LCL and container transport in the railway tariff system should be adjusted in a rational direction so as to attract more shippers to take advantage of multimodal transport.

Tolls on roads and bridges should be reduced for container distribution. The charging system for border procedures should also be standardised and simplified. The expenditures needed by the border inspection agencies should be granted by the

central or local governments according to relevant stipulations, while all of their business revenue should be turned into the central or local finance.

### 5.3.3 Improve the MT services

#### (A) Encouraging more qualified MTOs to be involved

Since the development of multimodal transport in China is still at the initial stage, multimodal transport operators (MTOs) are also very limited in numbers at present, especially qualified ones. This has obviously affected the quality of multimodal transport services. In order to foster the maturing of the MT market, one of the urgent tasks is to bring about more qualified MTOs to render good quality MT services in the context of market competition.

As discussed earlier in Chapter III, there are various types of MTOs, and only some of them can be regarded as being in a better position to serve as effective MTOs, such as container lines, freight forwarders or some major trucking companies. Currently in China, COSCO as the biggest of the liner shipping companies and Sinotrans as the biggest freight forwarder have already become two major MTOs serving the domestic as well as the international markets. However, many other shipping lines, freight forwarders or other transport providers are all at a much smaller scale, and most of them are state-owned enterprises. Therefore, a great task ahead is to make this considerable number of SOEs financially strong in their operations. As a result, they could easily be made qualified MTOs. To achieve this end, one of the important matters is to expand the financing capability of these enterprises, either supported by international financial institutions, such as the World Bank, or through joint ventures with foreign investors.

#### (B) Stimulating competition in multimodal markets

If a mechanism of effective competition in multimodal markets could be established, the quality of MT services will certainly be improved to a great extent.

At present, only large SOEs serve as MTOs, and are dominating the multimodal market. This has created a monopolistic or oligopolistic situation in MT operations. New entrants have a hard time competing and this, in turn, means the market has yet to become shipper-oriented. One of the major solutions to address this problem is to let other viable companies participate in the market competition. For instance, foreign-funded enterprises or joint venture operators might be good alternatives in challenging the SOEs by providing high-quality services to shippers.

In developing efficient multimodal services, the role of intermediaries is also critical. They match buyers' needs with available services and fill under-utilised transport capacity. However, their role is still limited in China at present, again because only a limited number of SOEs are involved in the field, leading to a situation, which is not oriented to meeting shippers' needs. This problem also needs to be addressed by introducing competition into the field.

#### 5.3.4 Upgrade Technology and Facilities

Because multimodal transport by containers is technology-intensive, the use of modern technology would substantially enhance efficiency of multimodal transport operations.

The railways could benefit immensely from the use of articulated and skeletalized flat cars, road-rail equipment and other container hauling technologies.

Road transport could also be improved by employing tractors with more powerful engines, which are more reliable and fuel efficient. In this case, restrictions for imported tractors should be relaxed, such as to reducing the level of import duties.

Regarding inland river container vessels, research needs to be carried out on the economical and practical dedicated vessel types, which could contribute to increasing transport efficiency and reducing transport cost.

Container handling facilities and transport equipment at the interior load centres should also be technically upgraded.

Infrastructure facilities for multimodal transport, especially in the interior areas, need to be given priority in the municipal transport development plans. Port development should also take into full consideration the integration of multimodal transport facilities, such as the dedicated berths for container barge operations, the rail accessibility in the container terminals, and so on.

Container tracking systems should also be introduced with a view to enabling transport operators and trading partners to track containers from their origin to destination and to predict the estimated time of arrival of inbound loads. This technology would play a very important role in promoting multimodal transport in China.

#### 5.3.5 Standardise Border Procedures and Documentation

Even if the multimodal transport operations are well performed, the complicated border procedures and documentation requirements would still cause excessive delays. Therefore, it would be of great significance to simplify and standardise border procedures and documentation in accordance with international practices.

##### (A) Streamlining cross-border inspection procedures

Customs inspections. A one-stop checking process should be adopted, during which all aspects of inspection would be carried out at the same time and place. The pre-arrival customs declaration system should be introduced so as to speed up the transit procedure of multimodal containers. By the bonded transit system customs inspections and payment of duties on imported goods can be deferred until they reach their inland destination. Procedures for this system should be simplified. Backed up by appropriate information and risk analysis systems, customs could allow reputable shippers and consignees to defer payments. Containers should be allowed to leave the

country from a different port than the one through which they entered, on the basis of a broader geographical performance allowed for customs brokers.

Animal/plant inspections and health quarantine. These inspections are funded through the fees charged. This system should be changed to one funded by the government budget. This will remove the incentive for authorities to inspect more often than necessary.

Commodity inspections and tallying. These two practices should not be part of mandatory border procedures. In accordance with international practices, they should be provided on a commercial basis at the request of importers, exporters and transport operators to certify to third parties that the quality and quantity of exported/imported commodities comply with the descriptions in the shipping or trade documents.

#### (B) Standardised documentation and EDI application

Uniform shipping/trade documents should be adopted. A practical way for the simplification and acceleration of the process is to use non-negotiable transport documents, i.e. sea waybills, which can be faxed or electronically transmitted from one place to another, and consignees do not have to wait for a bill of lading to arrive by mail. If bills of lading are still necessary, a system is being developed to send bills of lading electronically, i.e. via EDI. As long as legal issues concerning electronic bills of lading could be satisfactorily resolved, electronic commerce would have a great potential to be explored in international trade and multimodal transport.

The use of EDI helps simplify the documentation process. The same data can be used by the different trading partners connected to the same EDI network. This would also minimise the manual entry of data with all the errors and delays that might occur. It is recommended, therefore, that a national body concerning EDI or EDIFACT issues be established to set technical standards and advise on regional programmes to be integrated into a national system. International trade and multimodal transport would certainly benefit a great deal from the wide application of EDI technology.

## **CHAPTER VI**

### **Summary and Conclusion**

Having evolved to the present stage, multimodal transport has become a widely accepted concept all over the world. Multimodal transport is a comprehensive approach in utilising the advantages of different modes of transport. At the same time, by the integration of various modes of transport, it is not merely a simple addition of the strong points of all modes concerned. There is, in fact, a synergy effect in integrating different modes of transport into multimodal transport. The most striking consequences of this effect might be the reductions in transport costs and transit time, and the improvement in service qualities, which would directly benefit individual shippers as well as service providers themselves, and would be eventually conducive to the national economic development.

The World-wide containerisation trend has turned out to be a major catalyst in utilising multimodal transport to a greater extent. On the one hand, the concept of container transport has brought about technological and organisational possibilities for the employment of multimodal transport. It can hardly be conceived that multimodal transport would be widely used everywhere in the world without containerisation of the carriage of goods. On the other hand, multimodal transport would furnish container transport with an effective tool, by which the advantages of container transport would be exploited to the fullest extent. If the multimodal approach is not being fully utilised in the modern transport field, the significance of containerisation revolution would be diminished to a considerable extent.

The establishment of a smooth and successful multimodal transport mechanism would greatly depend on two important aspects: one is a well-functioning uniform legal regime governing multimodal transport, the other is the efficient performance of various multimodal transport operators.

One of the most important advantages of multimodal transport, the 'entire trip liability' concept, would be highlighted by the uniform legal regime, without which

conflicting situations might be created in the multimodal transport operations if only unimodal transport legal regimes apply. A highly-qualified as well as highly-motivated multimodal transport operator would be a key factor leading to the success of multimodal transport services.

Like in all other world economic activities, the imbalance of development also exists in the field of multimodal transport among different regions in the world. While multimodalism has been highly developed and contributed significantly to the development of national economies in the developed countries, multimodal transport is still at an initial stage in most developing countries. Therefore, a lot of studies and researches have been carried out with a view to investigating the situations of multimodal transport activities in various developing countries or regions.

As one of the largest developing countries in the world, China has been developing its multimodal transport industry for many years, especially after the container traffic became booming in the country. This dissertation sets out to make a tentative study on the current situation of multimodal transport development in China. The problems or bottlenecks that China has encountered during the process of its multimodal transport development might have some common traits with many other developing countries. So it is hoped that investigation of the Chinese cases in the dissertation would be of value in one way or another to other developing countries as well.

It is true that in most developing countries infrastructure facilities, networks and transport equipment are normally inadequate and generally of low technological base in developing multimodal transport activities. China is no exception. So it has been one of the major tasks for the Government to develop infrastructure facilities and improve technologies of transport equipment.

Nevertheless, while the problem of inadequate infrastructure facilities and transport equipment should be properly addressed at the outset of any multimodal transport activities, it is even more important to resolve problems existing with trade facilitation processes, such as the streamlining of administrative systems, the



unification of the policy and legal framework, the simplification of border procedures, documentation and so on. The availability of the hardware part of multimodal transport, such as the infrastructure networks, transport facilities and equipment, would not necessarily promote the development of multimodal transport, unless the software part of it is equally, if not more indispensably, furnished. This part is mainly referring to trade facilitation measures involved in the process of multimodal transport.

Multimodal transport, backed up by trade facilitation measures, would eventually become an efficient and effective transport approach in meeting challenges of new transport needs raised by modern society. Modern transport industry would be upgraded to a new level with the widespread application of multimodal transport all over the world.

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**Appendix 2 Table of comparison according to various international Conventions**

<i>Convention</i>	<i>Period of responsibility</i>	<i>Basis of liability</i>	<i>Limitation of liability for loss Of or damage to goods</i>	<i>Notice of claims for damage to goods</i>	<i>Time Bar</i>	<i>Transport Document</i>
<b>Hague Rules</b> 1924	While in vessel: “tackle-to-tackle”	Due diligence to make vessel seaworthy and to take care of cargo but with several exceptions	£100 Sterling in gold	3 days	1 year	Bill of lading (a negotiable document)
<b>Hague-Visby Rules</b> 1968 Protocol	While in vessel: “tackle-to-tackle”	Due diligence to make vessel seaworthy and to take care of cargo but with several exceptions	10,000 francs Poincare per package or 30 francs per kilo whichever higher	3 days	1 year	Bill of lading (a negotiable document)
<b>Hague-Visby Rules</b> 1979 Protocol	While in vessel: “tackle-to-tackle”	Due diligence to make vessel seaworthy and to take care of cargo but with several exceptions	667 SDR per package or 2 SDR per kilo whichever is higher	3 days	1 year	Bill of lading (a negotiable document)
<b>Hamburg Rules</b> 1978	While in carrier’s charge	Presumed fault or neglect	835 SDR per package or 2.5 SDR per kilo whichever is higher	15 days	2 years	Bill of lading or other document
<b>CMR</b> 1956(road)	While in carrier’s charge	Strict liability with exceptions for matters “beyond control”	25 Germinal francs per kilo (3 francs = 1 SDR)	7 days	2 years	Waybill/ Consignment note
<b>CIM</b> 1980(rail)	While in carrier’s charge	Strict liability with exceptions for matters “beyond control”	50 Germinal francs per kilo (3 francs = 1 SDR)	7 days	1 year	Waybill/ Consignment note
<b>Warsaw</b> 1929(air)	While in carrier’s charge	Strict liability with exceptions for matters “beyond control”	250 francs Poincare per kilo	14 days	2 years	Airwaybill
<b>MT Convention</b> 1980	While in carrier’s charge	Presumed fault or neglect	920 SDR per package or 2.75 SDR per kilo whichever is higher	6 days	2 years	Non-negotiable or negotiable transport document

(Source: MT Handbook, 1997, p 229, Annex X.)